

Gov Doc.
M.S.
TN
27
N8A27
1910
Engineering

Province of Nova Scotia

**REPORT OF THE
DEPARTMENT OF
MINES
1910**



HALIFAX, N. S.
COMMISSIONER PUBLIC WORKS AND MINES
KING'S PRINTER
1911



Digitized by the Internet Archive
in 2011 with funding from
University of Toronto

Y
Gov. Dec
1 N S

Province of Nova Scotia

REPORT OF THE DEPARTMENT OF MINES 1910



HALIFAX, N. S.

COMMISSIONER PUBLIC WORKS AND MINES

KING'S PRINTER

1911

CONTENTS.

MINERAL PRODUCTION.

	PAGE
Revenue.....	4
COMPARATIVE STATEMENT—Coal.....	5
INSPECTOR'S REPORT—Cape Breton, Southern District.....	7
Cape Breton, Northern District.....	37
INSPECTOR'S REPORT—Inverness.....	72
INSPECTOR'S REPORT—Pictou.....	86
INSPECTOR'S REPORT—Cumberland.....	116
ACCIDENTS—Cape Breton Southern District.....	32
“ “ Northern District.....	70
ACCIDENTS—Inverness.....	84
ACCIDENTS—Pictou.....	114
ACCIDENTS—Cumberland.....	123
SPECIAL REPORTS—Fire, Albion Mines.....	124
“ Birch Grove	127
“ Explosion, Chignecto.....	128
METALLIFEROUS MINES.....	130
Gold.....	131
Iron.....	155
Antimony.....	158
Copper.....	159
Lead-Silver.....	160
Manganese.....	160
Tin.....	161
Tungsten.....	161
Gypsum.....	164
Brick and other Clay-products.....	165
Building Stone.....	166
Government Core-drills.....	168
Provincial Museum and Science Library.....	194

TABLES.

	PAGE
Coal and Leases other than gold.....	xi
COAL.—General Statement.....	xii
Production and Sales by Collieries.....	xiii
Trade by Counties.....	xiv
Labour Employed.....	xv
Sales to United States.....	xvi
N. S. Coal Sales 1785-1910.....	xvii
GOLD.—General Statement.....	xviii
Total Production.....	xix
District Statement.....	xx
Monthly Statement.....	xxi—xxv
INTERCOLONIAL RAILWAY—Statement of Coal Trans- ported and used.....	xxvi—xxx

ADDENDA.

CAPE BRETON COUNTY.

Dominion No. 1 mine—250,000 cubic feet of air a minute in circulation.

Dominion No. 2 mine—explosive used last year 62,935 lb. of excellite, 659,448 tons of coal were hoisted—about 10 tons of coal for each pound of powder used.

In Dominion No. 8 mine, 245 men and boys are employed underground.

Sydney No. 1 mine, 725 men and boys are employed underground.

CUMBERLAND COUNTY.

Springhill No. 2—there are 205 men employed; and 30,000 cubic feet of air a minute in circulation.

Springhill No. 3—there are 6 men employed; and 20,000 cubic feet of air a minute in circulation.

Chignecto mine—121 men are employed; and 28,000 cubic feet of air a minute in circulation.

Minudie had 145 men employed underground.

Nova Scotia Mineral Production

YEAR ENDED SEPTEMBER 30TH, 1910.

MINERAL.	QUANTITY.
Coal raised (gross tons)	5,477,146
*Iron ore (net tons).....	52,640
Pig iron made "	341,674
Ingots steel made "	409,663
Limestone quarried "	483,100
Patent fuel (coke) made (net tons).....	493,167
Gypsum quarried (gross tons).....	322,974
Building stone, quarried (net tons).....	8,503
Bricks, made.....	21,305,500
Drain-pipe, made (feet).....	974,819
Grindstones quarried (net tons)	325
Gold bearing ore mined "	49,557
Gold produced (ounces).....	10,675
Maganese ore (net tons).....	25
Copper ore "	nil
Antimony concentrate "	203
Moulding sand "	180
Scheelite "	75
Sulphate of Ammonia "	3,622

*Iron ore imported 705,351 net tons.

Department of Mines

Report for the Year ended September 30th, 1910.

TO HIS HONOUR THE HON. JAMES D. MCGREGOR,
Lieutenant-Governor of Nova Scotia :

MAY IT PLEASE YOUR HONOUR,—

I respectfully present herewith to Your Honour, the Annual Report of the Inspector of Mines, containing an account of the progress of mining operations, together with statistical information complied by him from official and other returns.

I have the honour to be,

Your Honour's obedient servant,

CHRISTOPHER P. CHISHOLM,
Commissioner of Public Works and Mines.

HALIFAX, December 30th, 1910.

REPORT

ON THE

MINES OF NOVA SCOTIA

BY HIRAM DONKIN, C. E.

OFFICE OF THE INSPECTOR OF MINES,

Halifax, December 31st, 1910.

*To the Honorable Christopher P. Chisholm, K. C., M. L. A.,
M. E. C., Commissioner of Public Works and Mines :—*

SIR,—I have the honour to submit herewith the annual report on the mines of Nova Scotia.

An exhibit of the economic minerals of the Province, under the auspices of the government and in charge of the curator of the museum, was again made at the late Provincial Exhibition, and some important new exhibits were shown.

The removal of the Provincial Museum and Science Library to the new and enlarged quarters in the Technical College was begun during the year, and the transfer of the library has been completed and its books re-arranged. The museum removal is still in progress. These two institutions will be housed in future in a way much superior to that in which they have been in the past. The curator, Mr. Piers, has made extensive additions to the Museum collections, the number of specimens therein now numbering about 24,000; and the library is growing at a rapid rate. He has also continued his work in connection with the Public records of the province.

The demand for departmental drills has been above the average though slightly below that of last year. Details of the work done in 1910 will be found in Mr. Picking's report.

*Statement of Mines Office revenue for fiscal year ended
September 30th, 1910.*

SOURCE.	1ST. QUARTER	2ND. QUARTER	3RD. QUARTER	4TH. QUARTER	TOTAL.
Prospecting-License Apps. \$	654 00	424 50	1389 60	1997 00	4465 10
Lease Applications, (Gold & Silver)	914 00	328 00	502 00	984 00	2728 00
Rentals (Gold & Silver).....		5 00	836 50	9746 50	10588 00
License-to-Search Apps..	1320 00	1410 00	1470 00	2880 00	7080 00
Lease Apps. (other than Gold & Silver).....	300 00	500 00	1650 00	300 00	2750 00
Rentals (other than Gold & Silver).....			1830 00	27300 00	29130 00
Gold Royalty.....	456 21	1052 07	184 04	463 12	2155 44
Coal Royalty.....	99574 00	136510 21	83787 28	234619 99	554491 48
	\$103218 21	\$140229 78	\$ 91649 42	\$278290 61	\$613388 02
Fees.....					1188 08
					<u>\$614576 10</u>

COAL TRADE,

The returns of coal sold during the year 1910 show, compared with the returns for 1909, as follows :—

	1909	1910
Nova Scotia.....	1,769,803	1,806,999
New Brunswick.....	542,827	530,614
Newfoundland.....	156,248	176,986
Prince Edward Island.....	78,898	79,492
Quebec.....	1,508,817	1,786,948
United States.....	320,735	290,668
St. Pierre.....	10,235	7,504
Bunker.....	227,395	217,685
	4,615,713	4,896,896

CUMBERLAND COUNTY.

The production for the fiscal year 1910 was 227,862 tons as compared with 542,040 for 1909.

The principal producer was the Maritime Coal, Railway & Power Co., with an output of 161,843.

The strike referred to in last year's report still continues at the colliery of the Cumberland Railway and Coal Co., accounting for a falling off in the production of that colliery for the year of about 400,000 tons.

The report of Mr. A. V. Cameron, Deputy Inspector for the Cumberland District, gives details of the condition of the collieries in his district.

PICTOU COUNTY.

The production for the fiscal year 1910 was 629,599 tons, as compared with 677,637 tons for the year 1909.

The principal producer was the Acadia Coal Co., Ltd., with an output of 355,323 tons.

The report of Mr. Thomas Blackwood, Deputy Inspector for the Pictou District, gives details of the condition of the collieries in his district.

INVERNESS COUNTY.

The production for the fiscal year 1910 was 364,104 tons as compared with 362,116 tons for 1909,

The principal producer was the Inverness Railway & Coal Co., with an output of 277,257 tons.

The report of Mr. W. F. Davis, Deputy Inspector for the district of Inverness, gives details of the condition of the collieries in his district.

CAPE BRETON COUNTY.

The production for the fiscal year 1910 was 4,205,131 tons as compared with 3,634,392 for the year 1909.

The principal producers were the Dominion Coal Company, Ltd., with an output of 3,244,754, and the Nova Scotia Steel and Coal Co., Ltd., with an output of 836,348 tons.

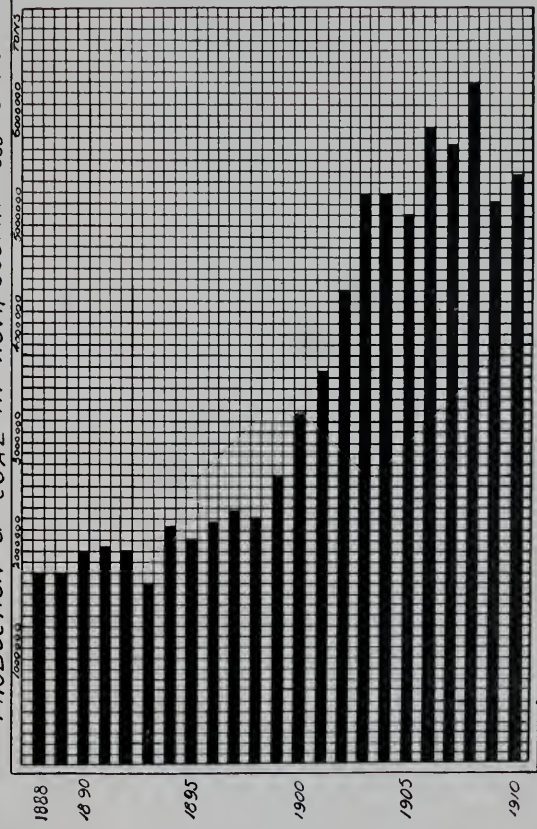
The reports of Mr. N. A. Nicholson and Mr. John J. McNeil, Deputy Inspectors for the district of Cape Breton, gives details of the condition of the collieries in their district.

MEN EMPLOYED IN NOVA SCOTIA COAL MINES 1888 TO 1910

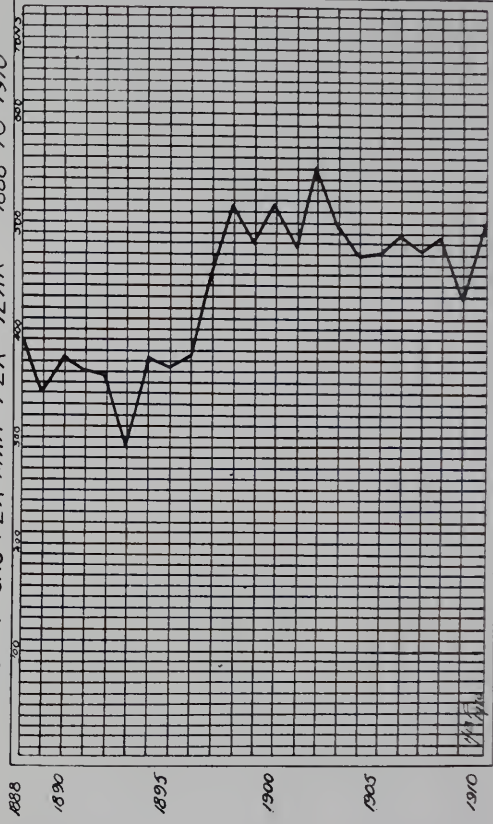
MEN EMPLOYED IN NOVA SCOTIA COAL MINES 1888 TO 1910



PRODUCTION OF COAL IN NOVA SCOTIA 1888 TO 1910



OUTPUT IN TONS PER MAN PER YEAR 1888 TO 1910



GLACE BAY, N. S., November 6th, 1910.

HIRAM DONKIN, ESQ.,

Deputy Commissioner, Public Works & Mines, Halifax, N. S.

DEAR SIR:—I beg leave to submit to you the report on the coal mines in the southern district of Cape Breton, for the fiscal year ended September 30th, 1910.

DOMINION NO. 2 COLLIERY.

This mine is in the Phalen Seam. The direction of the true dip at the pit is north-east; but about three thousand feet in a north-easterly direction it becomes south-east. The pit bottom is arranged with automatic revolving tipples and storage tanks, and is capable of handling from three to four thousand tons a shift. The tipples are operated by compressed air. The storage-tank doors are arranged so as to be opened by the tank which takes the coal to the surface, landing on chains, taking the weight from the back balance and allowing the door to open: the door closes again when the tank is raised off the bottom.

There are 232,000 cubic feet of air a minute in circulation—w. g. 4 inches. The air is divided five times, north motor head-way taking 25,000 cubic feet a minute; north level No. 5. 30,000 cubic feet a minute; north level 72,000 cubic feet a minute; main south level, 30,000 cubic feet a minute. and south head-way 75,000 cubic feet a minute. A Dixon fan is used for ventilating. The fan is 29 by 9 feet. The distance from centre of fan to the centre of the coal shaft is 68 feet. The fan-drift is 15 by 14 feet, and the fan-shaft 11 by 15 feet.

The fan-house is of brick, it is 47 feet long, 26 feet 5 inches wide and 25 feet high. The distance from the fan-house to the air-shaft is 43 feet.

The stoppings in the main air-ways are of concrete and brick, and in the other air-ways, boards and brattice cloth are used. The number of men in each air section is as follows:—

North motor head-way.....	90
No. 2 head-way, off No. 7 levels.....	39
Main North level.....	357
South level.....	65
Main head-way, south.....	303
A total of 854 men underground.	

The reservoir at this colliery holds 5,000,000 gallons. An independent water-line is along all the main roads, and it is connected to the air-line, so that it can be used to spray the working-places and water the main roads. There are standard hose connections 1000 feet apart on the air-line.

The mine gives off considerable gas, and the Ackroyd & Best safety lamps are used.

Development work is being driven as follows:—

No. 2 head-way off No. 1 south main head-way, 280 feet; back head-way 330 feet. Morrison's level, south incline, high level 479 feet low level, 560 feet. Barrier head-way south, main 285 feet back head-way 250 feet. New deeps, north main, 720 feet back deeps 800 feet. North motor level, main, 1,630, feet low level, 1,560, feet.

No. 1 head-way, north motor level, main 390 feet back head-way 375 feet.

No. 4 head-way, No. 3 and 4, north, main, 300 feet back head-way 250 feet.

North motor head-way, main, 150 feet back head-way 125 feet Head-way off No. 40 room (Philips), main, 320 feet back head-way 340 feet.

Mr. J. D. Maxwell is acting manager, since the lamented death of Mr. Beaton: Mr. D. H. McLean is underground manager.

All information I asked of these officials was promptly and willingly given.

The surface equipment consists of:—

A Dixon first motion hoisting engine, 34 by 48 inches double conical drum, Diameter 18 feet and 12 feet by 5 feet wide.

A Dixon man-engine, 38 by 48 inches, double conical drum, diameters 18 feet by 12 feet by 5 feet wide.

Two fan-engines, Dixon Corliss, 20 by 42 inches.

In the power-house, one Walker air-compressor, steam end 31 by 57 by 60 inches air end, 51 by 32 by 60 inches capacity 6300 cubic feet a minute.

Three Rand compressors, steam end 20 by 36 by 40 inches air-end 20 by 20 by 48 inches capacity each, 3000 cubic feet a minute.

Two Norwalk compressors, steam-end 20 by 38 by 36 inches capacity, each, 1380 cubic feet a minute.

Three Goldie electric engines, 20 by 40 by 26 inches—550 kilowatts each.

Two Ideal engines, 12 by 12 inches—75 kilowatts each.

One Worthington pump, 14 by 12 by 10 inches—800 gallons a minute.

Smith-Vale pump, 14 by 10 by 12 inches—100 gallons a minute.

Two 30 h. p. Canadian General Electric motors.

One turbine engine, 1000 kilowatts, speed, 1500 revolutions a minute.

In Boiler house, 20—318 h. p. B. & W. boilers with under-feed stokers.

Two 8 feet fans for forced draft. One fan, driven by 40 h. p. motor. Four Knowles pumps, 12 by 6 by 10 inches 250 gallons each.

Underground,—Two Jencks engines, 9 by 12 inches.
 One Jenck engine, 5 by 12 inches.
 One Flory engine, 14 by 20 inches.
 One Flory engine, 9 by 12 inches.
 Three Baldwin air-locomotives, cylinders 11 by 14 inches, weight 20 tons.
 Three air-locomotives, cylinders 10½ by 14 inches, weight 17 tons.
 One Porter air-locomotive, cylinders 7 by 14 inches, weight 10 tons.
 One Porter air-locomotive, cylinders 7 by 12 inches, weight 7 tons.

Pit Timber used during the year.

Props,	81,136,	lineal feet.....	820,024
Booms,	2,750	“ “	42,147
Sleepers,	34,669	“ “	138,828

Rails in the mine,—29,907 feet, 56lb. rails; 16,760 feet of 30lb. rails; 113,890 feet, of 18lb. rails.

DOMINION NO. 3 COLLIERY.

This mine is on the Phalen seam. The height of the coal is 7 feet., 6 inches. The coal is soft, and the pitch of the seam 8 per cent. The mine is practically free from dust, and is fairly damp.

There are 85,000 cubic feet of air a minute in circulation—water guage 2.4 inches. The fan is placed directly over the shaft. The area of the fan-drift is 100 square feet. The air is divided twice.

The stoppings on the main air-way are of concrete and stone: in the other air-ways, boards and brattice cloth.

Bulldog powder has been discontinued, and excellite and monobel powders at the rate of about three thousand pounds a month, are used.

The air-pipe used to convey air to the machines can be converted into water-line in case of fire.

There are standard hose connections at convenient distances along the pipe-line.

Pillars have been drawn successfully on number 14, 15 and 16 landings.

At the end of the recent strike, the mine went on double shift, and the number of men employed are as follows:—

Surface	87
Miners.....	150
Unskilled.....	162
Officials, including Deputy Overmen and Examiners.....	19
Total.....	418

The slopes are driven to the barrier of No. 2 mine, and a lodgement has been made near the slope. The total length of the slope is 9,000 feet. The deeps have been driven 370 feet.

No. 16 west level, has been driven.....	300 feet
No. 17 west level, " " "	500 "
No. 18 east level, " " "	800 "
No. 17 east level, " " "	300 "
No. 18 west level, " " "	1,100 "

The output for the last year was 217,843 tons, to produce which 35,992 lbs. of powder were used—6.05 tons for each pound of powder.

There are 418 Acroyd & Best safety lamps in use.

The management is opening and cleaning the in-take air course, and blasting another air-crossing over No. 18 east levels;

when this work is finished it will reduce the water-guage, and increase the quantity of air.

The fire-fighting apparatus consists of one hose cart, with two-inch standard hose. There are valves and connections on all pipes going into the mine, "fire kings" on all landings and in the stables. The surface buildings are supplied with hydrants at convenient points.

Mr. M. A. McInnis is manager.

Mr. N. A. McDonald is underground manager.

Surface Machinery.

One Walker compressor, h. p. steam cylinder, 31 inches, l. p. steam cylinder, 57 inches, h. p. air cylinder, 32 inches, l. p. air cylinder 51 inches, stroke 60 inches, capacity 6000 cubic feet a minute.

One haulage engine, 20 by 42 inches.

One screen engine, 12 by 34 inches.

Three B. & W. boilers, 318 h. p.

One fan, 7 1/2 by 13 1/2 feet.

One fan-engine, 18 by 18 inches.

Two Mumford boilers, 190 h. p.

Underground.

One Westinghouse motor.

Six pumps,—three 12 by 18 inches, and three 4 1/2 by 7 inches.

There are 284,000 gallons of water, pumped daily from this mine.

Mine Timber used during the year 1910.

Props, 73,125 lineal feet.....	658,125
Booms, 776 " "	13,216
Sleepers, 17,685 " "	90,155

Rails in mine, 16,750 feet of 30 lb. 25,200 feet of 18 lb.

DOMINION No. 4.

The quantity of air in circulation at this mine is 116,000 cubic ft. a minute, produced by two fans—one 14 by 6.4 ft. and one 12 by 6 feet. The drift for the first fan has an area of 90 ft. and is 35 ft. long. The other drift has an area of 90 ft., and is 15 ft. long. There are two fan-shafts, one 10 ft. in diameter and the other 8 ft., separated by strata of 5 ft., and are connected on the surface, and so arranged that either can be closed without interfering with the ventilation. The average w. g. is 2.5 in; the average barometer reading is 30 inches, the average thermometer reading 59 degrees. One fan is rope-driven, the other is directly connected. There are two splits of air at the bottom of the fan shaft, one to the east the other to the west. The east-side air is split again at No. 8 west level. The rest of the air going to the east part of the deep, and leaves the mine at a shaft at Boutilier's shore. The west-side air is again split about 3000 feet from the bottom of the fan-shaft, and ventilates the west level section. This air leaves the mine at what is called Morrison's slope. The west-deep air returns by way of coal shaft.

The stoppings along the main intakes are concrete and stone. The other stoppings are boards and brattice cloth. The coal is about seven feet thick, and is fairly hard; pitch of seam eight degrees.

There are 160 hand pick miners.
 " " 35 machine "
 " " 35 helpers.
 " " 60 shooters-and-loaders.
 15 loaders.
 265 laborers.
 84 men on surface.

The output for the last year was 294,783 tons; there were 42,111 lb. of bulldog powder used. Seven tons of coal being produced for each pound of powder. The Ackroyd & Best safety lamps are used, 596 in service out of a total of 820.

No. 7 east levels off west deep were driven.....	300 feet.
No. 8 " " " " " " " "	500 "
West deeps were driven.....	350 "
No. 9 west head-way, west deep.....	450 "
No. 9 east levels, off east deep.....	450 "
No. 8 " " " " " " " "	150 "
No. 6 " " " " " " " "	300 "
No. 10 " " " " " " " "	150 "

The Officials are John Casey, Manager. Benjamin Wilson, Underground Manager. John M. Morrison, Chief Engineer.

There is an organized fire brigade with the necessary equipment. There are hydrants at convenient points about the plant, fire-kings in all the buildings, and fire-kings at all landings, and in convenient places in the mine. Standard hose connections on main air-pipe lines, and the air-pipe lines are connected on the surface to the main water supply.

Surface Machinery.

One hoisting engine 20 by 48 inches.

One man-engine 18 by 24 inches.

One engine pumping station 20 by 42 inches.

One engine 4 by 6 (Lamp cabin).

One engine 10 by 14 (Box car loader).

One engine 22 by 42.

One compressor, steam cylinders, 20 by 36 by 48, air 20 by 32 by 48.

One compressor, steam cylinders, 22 by 38 by 48, air 22 by 36 by 48.

One fire-pump 14 by 9 by 12 inches.

Two feed pumps 7 ½ by 4 ½ by 10 inches.

One small engine (Machine shop) 4 by 6 inches.

One saw-mill engine 8 by 24 inches.

One Dixon fan-engine 18 by 36 inches.

One Murphy fan-engine 11 by 20 inches.

One screen engine 12 by 34 inches.

Seven batteries of B. & W. Boilers, 1778 h. p.

There are three tubular boilers (Pumping station) 75 h. p. each.

The water is taken from the mine by pumps and tanks.

Underground Machinery.

One pump, 12 by 8 inches No. 8 east deep, delivering water through a 12 inch borehole, 595 feet deep.

One pump capacity 600 gallons a minute. No. 8 east deep.

One pump " 250 " a minute.

One pump, " 420 gallons a minute. No. 9 east deep.

Two tanks at water shaft, capacity 1,800 gallons a minute.

Pumps operated by electricity, tanks operated by steam.

There are 53,450,000 gallons of water taken out per month.

Timber used during the year:—

Booms.....	32,537	lineal feet.
Props	856,220	" "
Sleepers	55,432	" "

Rails in use:—

38,000 lineal feet.....	30	lb.
34,314 " "	18	"

DOMINION NO. 5.

The quantity of air in circulation in this mine is as follows:—
French slope 138,000 cubic feet a minute; East slope 50,000 cubic feet a minute. The former quantity shows a w. g. of 1.4 inches and the latter a w. g. .5 of an inch.

The average barometer reading for the month of February was 29.4 inches and for August 29.80 inches.

There are 92 hand-pick miners, 20 machine miners, 4 shearers, 24 machine helpers, 40 loaders, 135 laborers, and 70 men on the surface.

No. 4 level from the French slope, to the East Slope, 3000 feet long, has been laid with 45 lb. rails, and an engine placed to haul coal from East slope to French slope.

The screening plant is the most modern in the country, consisting of four sets of shaker screens, having three screens to a set. First, a two-inch screen under which is an inch and a half screen and lastly a three-quarter inch screen. The coal is conveyed from the screens by picking belts each about 40 feet in length and is delivered on to two loading belts, from which the cars are supplied. This machinery is electrically driven, power being brought from No. 2 colliery, at a voltage of 6,600, which is transformed here to 550 and 110 volts for motor and lighting purposes.

The following is the distance driven in narrow work :—

The main deep total distance is 11,000 feet. These deeps were finished in May, 1909, down to the barrier between Dominion No. 5 and Dominion No. 2 No. 10 north levels; total length of these levels, 1600 feet 530 feet of this having been driven during the present year. This level is driven to the barrier between No. 5 and No. 1 colliery. No. 10, south levels, total length, 1350 feet 150 feet. of this being driven during the year. This level is finished, and has been driven to the barrier between No. 5 and No. 3 colliery.

The rooms in this section have also been driven to barrier, and pillars started back. No. 11 north levels, total length 1000 feet were driven 675 feet during the year. No. 11 south levels, total 1200 feet were driven 550 feet during the year. No. 9 and 10 pillar sections have been drawn back to the French slope barrier; also East slope deep pillars from No. 10 to No. 7 have been drawn successfully.

The output during the year was 276,400 tons. The quantity of explosives to produce this was 27,095 lb. bulldog powder, and 7568 lb. of monobel, being 7.9 tons of coal for each pound of powder used.

There are 352 Ackroyd & Best safety lamps in service.

The main roads are laid with 56 lb. rails and 30 lb. rails. The horse-haulage roads are laid with 18 lb. rails.

The fire protection apparatus consists of a Northey duplex fire pump, 14 by 7 by 12 inches having a capacity of 500 gallons a minute. A Knowles duplex pump, 14 by 8½ by 10 inches is also connected to the service pipe to be used in cases of emergency. Two hose-reel carts and 1500 feet of Standard hose. A six inch pipe laid underground from the fire pump connects with five hydrants at convenient positions around the plant. A three inch pipe to the bank-head where eight 2½ inch hose valves with hose and nozzles are located. A branch of 2½ inch Standard hose and valve in the compressor house completes the surface fire protection. The fire pumps are connected at the surface with main air-pipes to the pit, and at intervals of 500 ft. 2½ inch pipe with Standard hose valves are led to the main haulage-ways. At the French slope bore-hole, which is 12 inches in diameter, and through which a turbine pump discharges, a connection is made, and a pipe laid down the north back-deep with valves at various distances. At the bottom of the lodgments a pipe runs to the lower workings giving a good supply below. This colliery has an organized fire brigade.

The officials are :—

Alex. McEachern, manager.

W. G. Ross, asst. manager.

Michael McIntosh, underground manager.

Thomas F. Hickey, chief engineer.

Surface Machinery.

One Corliss haulage engine, 28 by 60 inches.

One Jenck's hoisting engine, 22 by 42 inches. (No. 10 Colliery).

Two Atlas engines—one 16 by 22 in. and one 9 by 14 inches.

One Rob Armstrong engine, 18 by 22 inches. (Fan).

Two Rand Compressors, capacity 2500 feet.

One Walker Compressor, capacity 2500 feet.

One Norwalk Compressor, capacity 2000 feet.

These engines are non-condensing, steam pressure 115 lb.

Seven batteries of B. & W. boilers, h. p. 1,878, fitted with Parsons forced draft, and fed with two Knowles Duplex outside-packed plunger pumps 10 by 6 by 12 inches.

Underground Machinery.

One Cameron pump, 14 by 7 by 18 inches.

One Cameron pump, 14 by 9 by 33 inches.

One Knowles pump, 16 by 7 by 10 inches.

Two turbine pumps operated by electricity.

The quantity of water pumped is 25,900,000 gallons a month.

Timber used during last year :—

Booms 7,844 lineal ft. diameter 7 inches.

Props 589,446 " " small end 4½ inches.

Sleepers, 70,352 " "

Rails, 56,900 lineal ft. of 56 lb. 10,000 lineal ft. of 30 lb.

" 55,400 " " " 18 "

DOMINION No. 6.

This mine is in the Phalen seam, near McRae's Point, on the southern side of Glace Bay. The seam is 7 feet thick, 6 feet of which is good coal. The slope 3,300 feet long, pitches about 12 degrees on the true dip, the course north 9 degrees east. The method of work is bord-and-pillar. In the land area the rooms are 20 feet wide with pillars 20 feet; undersea the rooms are 20 feet, pillars 25 feet. The roof is 8 inches of soft till between the coal and hard gray sandstone. The haulage is direct with a one inch rope, 20 cars in a rake.

The bankhead is of modern design, and the coal handling is almost entirely automatic. The structure is of wood—hard pine posts, spruce and hemlock frames on concrete pedestals. It is lighted by electricity and fitted throughout with standard pipe and hose for fire protection. The full cars are hauled to the tippie by

an automatic car-haul. The coal passing from the tippie to the shaking screen from which it is fed to two picking belts. These belts are 45 feet long and 5 feet wide, speeded to 43 feet a minute. The slowness of their motion and their general design are such that the coal can be cleaned easily with a minimum of breakage.

The output from this mine for the year was 120,143 tons. To produce this 24,891 lb. of bulldog powder was used, being 4.82 tons of coal for each pound of powder. 400 Ackroyd & Best safety lamps are in use.

There are 52,000 cubic feet of air a minute in circulation, w. g. .7 inch. The ventilation is produced by a Walker fan, 20 by 7 feet. The fan-drift is 63 feet long, area 132 feet. The fan-shaft is 12 by 12 feet. The fan-house is 15 by 52 by 11 feet—concrete and brick with a fire-proof roof, and is 50 feet from the shaft. The main intake airways have concrete and brick stoppings. The other stoppings of boards and brattice cloth.

The distance driven in narrow work for the year is as follows: Headways 2,049 feet, Levels 1,714 feet, Deeps 308 feet.

Number of men employed:—

Machine men.....	23
Helpers.....	23
Hand-pick miners.....	14
Loaders.....	12
Shooters & Loaders.....	60
Pit Labourers.....	115
Surface	58

This report covers the last six months of the year, the mine being idle until April last, owing to a strike.

J. C. Mitchell, manager.

Henry Wilson, underground manager.

R. J. Bell, chief engineer.

Surface Machinery.

One Jencks haulage-engine 26 by 58 inches.

Two Walker compressors, 3500 cubic feet of air a minute.

Six B. & W. boilers, 1,500 h. p. Parson's forced draft.

One Knowles pump (fire) 500 gallons a minute.

Underground Machinery :

One Cameron pump, 16 by 8 ½ by 33 inches.

One Northey duplex pump, 30 by 8 by 24 inches; pumps driven by compressed air, discharge 8,640,000 gallons a month.

Timber used during the year :—

Booms 13,956 lineal feet—diameter 7 inches.

Props 93,979 “ “ “ 4 ½ “

Sleepers 42,580 “ “

Rails in mine :—

76,467 lineal feet of 18 lb, 11,425 lineal feet of 30 lb.

DOMINION NO. 7.

This mine is in the Hub seam—the top seam in the basin—9 feet thick, coal fairly hard. It pitches about 1 foot in 16. The man-cage runs in a department of the coal shaft 10 ½ by 6 feet. The traveling slopes are in good condition. The mine is practically free from gas. The stoppings are of cement, boards and brattice cloth. There are 55,000 cubic feet of air a minute in circulation. The air is divided into two currants—one to the north and one to the south. The former has 31,000 cubic feet a minute and the latter 24,000 cubic feet—w. g. 1.45. The average barometer reading for the month of February was 29.9 inches, for August, 30 inches.

The mine is worked bord and pillar. There is a band of splint and stone from 10 to 12 inches thick, 3 ½ feet from the bottom of the seam. The bottom-coal is blown from this band. The stone and splint are then blown down and shoveled back after the bottom coal is filled away. The top coal is then blasted. It is free from stone. In this way the coal is kept clean, very little stone being sent to the surface in the coal.

The output for the year was 132,677 tons, 26,064 lb. of bulldog powder being used—5.09 tons of coal being produced for each lb. of powder.

There are 395 Ackroyd & Best safety lamps in use.

The main deeps were driven 570 feet, back-deep 565 feet. No. 2 south high-level, 125 feet, No. 2 south low-level, 165 feet; No. 3 main headway, off No. 2 south, 250 feet, back-headway, 250 feet. No. 3 south level 80 feet, No. 3 north high-level 705 feet, No. 3 north low-level, 685 feet, No. 2 main headway off No. 2 north, 130 feet, back headway 165 feet. No. 3 main headway, off No. 3 north, 260 feet, back headway 245 feet. No. 4 main headway, off No. 3 north, 470 feet, back headway, 475 feet. No. 4 high level, 200 feet, low level, 200 feet. Exploration levels, high levels, 170 feet, low level, 130 feet.

Employees:—

Miners.....	150
Unskilled labour.....	180
Surface.....	50

Officials :—

D. L. McKay, Manager.

W. T. Chew, Underground Manager.

Warren Baird, Chief Engineer.

Surface Machinery.

One hoisting engine, 24 by 42 inches, first motion, Corliss.

One man-engine, 18 by 36 inches.

One fan-engine (Robb Armstrong) 12 by 15 inches, 100 h. p.

Banking engines (Jencks) 18 by 36 inches.

Banking engines (Matheson) 18 by 36 inches.

One Wagner electric engine .5 horse power.

One Canadian electric engine .5 horse power—in lamp cabin.

Two Norwalk compressors in duplicate, steam 20 by 34 inches, air 19 by 30 inches, stroke, 32 inches. Capacity each 2000 feet a minute.

One duplex circulating pump $7\frac{1}{2}$ by $4\frac{1}{2}$ by 10 inches.

One duplex Knowles fire pump, 14 by $7\frac{1}{2}$ by 12 inches, capacity 5000 gallons a minute.

One duplex Northey pump, $5\frac{1}{2}$ by $3\frac{1}{4}$ by 6 inches.

Two vacuum water heaters,

Four 250 h. p. B. & W. boilers.

Two 15 h. p. Allis-Chalmers-Bullock, 3 phase 25 cycle.

One 7 h. p. 3 phase, 25 cycle.

Underground Machinery.

A Davy pump, 10 by 24 inches.

One McDougall, 3 stage, 5 inches—below No. 1 south level.

One Jeansville pump, 16 by 8 by 18 inches “ “ “

One Cameron pump, 14 by $6\frac{1}{2}$ by 18 inches below No. 3 south level.

Four Cameron pumps, $7\frac{1}{2}$ by $4\frac{1}{2}$ by 12 inches—two of these in the sinking—one in No. 2 south, and one in No 3 south, pumping from depressions in levels. The Davy and McDougall pumps are operated by electricity. The Cameron is operated by compressed air. There are 9,920,000 gallons of water pumped monthly.

The method of timbering is booms throughout. In narrow places the booms are hitched in both ribs—in rooms one end of the boom is hitched in the rib, and a prop under the other end—sometimes a prop is put under both ends.

There is an organized fire brigade, and hydrants at convenient places on the surface and the bankhead. This system extends to the pit bottom and to the stables in the mine, and is connected to the air pipes, making it available for all parts of the colliery. There are 17,000 feet of fire-hose, and fire extinguishers in all the colliery buildings and at convenient points in the mine.

Pit timber used during the year :

Booms	82,082 lineal feet—diameter 7 inches.
Props	306,053 “ “ “ 5 “
Sleepers	42,148 “ “ “
Rails in mine :	18,585 feet of 30 lb. 35,905 feet of 18 lb.

DOMINION No. 8.

This mine is in the Harbor seam, 5 feet, 6 inches of coal ; true dip north 55 degrees east ; roof is hard shale, 15 feet thick ; bottom hard fire-clay. The shaft is 80 feet deep, 6 by 14 feet. The ventilation is produced by a Murphy fan, 8 feet in diameter, belt driven. There are 54,000 cubic feet of air a minute in circulation—w. g, 1.5 inch. The fan drift is 6 by 8 feet, 200 feet long, and the fan-shaft 10 feet in diameter. The fan-house, 16 by 20 feet, is of wood with concrete foundation ; it is 15 feet from the fan-shaft. The bankhead is of wood. The air is divided twice. On the main intakes the stoppings are of stone, in other places they are of wood. The mine is damp ; neither dust or gas has been detected. There are two traveling slopes in good condition. The level is 5,200 feet long and 12 feet wide. Endless haulage is used, rope one inch. The mine is timbered in the ordinary way with props and caps. Marsaut safety lamps are used, 225 in service and 102 in reserve. This colliery has a fire brigade and is well supplied with fire fighting apparatus. As this is a hand-pick mine there are no air lines in the pit, and consequently is not as well protected from fire underground as are the mines where the air-lines can be converted into water-lines. The main haulage was extended 1200 feet, making a total of 6,400 feet.

There were 117,425 tons of coal produced last year ; 28,851 lbs. of powder were used to produce this output, about 4.07 tons for each lb. of powder consumed.

Officials :—

P. Pendergast, manager.

Robert Crosby, underground manager.

Dan McNeil, engineer.

Surface Machinery:—One winding engine, 16 by 30 inches, drum, 6 feet in diameter ; one bank engine, 9 by 16 inches, drum,

20 inches in diameter ; one engine, 7 by 9 inches (machine shop) ; one endless haulage engine, 18 by 36 inches, fly wheel, 9 feet in diameter ; one fan-engine, 9 by 12 ; one Knowles pump, 14 by 7 by 12 inches (fire) ; two Northey feed pumps, 6 by 10 by 4 by 10 inches ; one electric motor, 300 h. p. ; two Ingersoll return tubular boilers, 50 h. p. each ; two B. & W. boilers of 212 and 318 h. p. ; two turbine pumps kept in case of accident or repairs to the water tanks by which the water is hoisted from the mine.

The average number of gallons hoisted in a month is 32,670,000.

Timber used during the year :—

Booms, lineal feet, 544.

Props lineal feet, 275,793.

Sleepers, lineal feet, 31,059.

Rails in mine :—

16,024 feet of 30 lb., 18,886 feet of 18 lb.

DOMINION No. 9.

This mine is in the Harbor seam, five to six feet thick ; pitch, $5\frac{1}{2}$ per cent. ; fairly hard coal. The roof is shale, 15 feet thick ; pavement, fipe-clay, 3 or 4 inches thick. The shaft is 450 feet deep, 19 by 11 feet, and is part of No. 2 shaft. The ventilation is produced by a Walker fan, 24 feet 6 inches, directly connected. The fan-drift is 15 by 14 feet ; the air-shaft is 11 by 16 feet, w. g. 2.6 inches. The fan-house, 47 feet 4 inches by 22 feet 6 inches ; post, 22 feet, 5 inches. The stoppings are of concrete and stone, a few are of boards and brattice-cloth. There are 180,000 cubic feet of air a minute in circulation. It is divided as follows :—No. 1 split, south side, 20,000 cubic feet a minute. Number of men in this district is 66.

No. 2 split, south side, 60,000 cubic feet a minute, with 190 men.

Split to north headway, north side, 54,000 cubic feet a minute, with 55 men.

North deep split, 46,000 cubic feet a minute supplying 205 men.

The mode of work is bord-and-pillar, pillars from 25 to 40 feet wide, according to cover, and the rooms 20 feet. The mine is very damp, gives off considerable gas. There are 516 Ackroyd & Best safety lamps in service and 131 in reserve.

The timbering is props and caps; some places booms are used. There are two dams in the mine. The same reservoir as is described in report of Dominion No. 2 supplies water to this colliery. Plane-rope haulage is used on the deep and tail rope on the levels. Air locomotives haul the coal on the levels to the pit bottom.

There are no water connections underground except to the stables; the air lines here are connected with water lines to the surface, and can be used for fire purposes, if required. There are standard hose connections at convenient distances along the pipe lines. The pit-stables are supplied with two sets of standard hose, and fire-kings are placed at convenient places in the mine.

The advanced workings for the year were driven as follows:

No. 4, south levels, south deep—high level, 886 feet; low level, 750 feet.

No. 3 south levels, south deep—high levels, 310 feet; low level, 310 feet.

No. 2 north, high level, 210 feet; low level, 260 feet.

South angle-deeps—main deep, 160 feet.

North back-deep, 580 feet; south back-deep, 140 feet.

North angle-deep, main 575 feet.

North back-deep, 560 feet; south back-deep, 240 feet.

No. 2 south levels, off north angle-deep, high level, 320 feet; low level, 250 feet.

No. 5 headway, No. 1 north deep, main headway, 275 feet; back headway, 245 feet.

No. 4 headway, No. 1 north deep, main headway, 340 feet; back headway, 360 feet.

No. 5 north level, north deep—high level, 785; low level, 765 feet.

No. 2 north level, north deep—high level, 660 feet; low level, 675 feet.

No. 6 headway, No. 3 north, main headway, 430 feet; back headway, 450 feet.

Old north level, 850 feet.

No. 7 headways, off No. 2 north deep, main headway, 110 feet; back headway, 100 feet.

Water levels, south angle-deep, high level, 115 feet; low level, 110 feet.

There were 225,183 tons of coal produced during the year, to produce which 37,846 lb. of bulldog powder were consumed, being 5.95 tons of coal to each lb. of powder.

The officials are :—

Alex. S. McNeil, manager.

Dan McCuish, underground manager.

Alex. McLeod, engineer.

There are 516 men employed underground at this colliery.

There are two large block dams in the levels to the lodgment; the size of one dam is 12 feet wide at one end and 14 feet at the other; 9 feet high and 9 feet long. The other one is 12 feet at one end, 14 feet at the other; 14 feet high and 9 feet long.

Surface Machinery.

One winding engine, size 24 by 42 inches; drum, 8 feet in diameter.

Underground Machinery.

One engine, 14 by 20 inches, at pit bottom.

One engine, 9 by 10 inches, north headway.

One engine, 14 by 20 inches, No. 3 south angle-deeps.

One tail-rope engine, 9 by 12 inches, Campbell's level, south side.

One engine, 8 by 10 inches, McKinnon's headway, south level.

One winch, 16 by 14 inches, face of south angle-deep.

One engine, 8 by 15 inches, No. 3 landing. north deep.

One air locomotive, 10½ by 14 inches, (Porter) 17 tons.

One 7 by 14 inch locomotive, 10 tons.

One 7 by 12 inch locomotive, 7 tons.

One Northey duplex pump, 12 by 24 by 8 by 24 inches, at pit bottom.

One Northey duplex pump, 20 by 8 by 24 inches, at pit bottom.

One Jeansville pump, 16 by 9 by 18 inches, north angle deep

One Northey pump, 7½ by 4½ by 10 inches, north angle deep.

One Northey pump, 7½ by 4½ by 10 inches, north deep travelling road.

One Jeansville, 16 by 9 by 18 inches, in south deeps.

One Northey pump, 7½ by 4½ by 10 inches, in south deeps.

Pumps all operated by compressed air. Number of gallons pumped each month, 15,120,000.

Timber used during the year :—

Booms, 37,704, lineal feet ; diameter, 7 inches.

Props, 529,409 lineal feet ; diameter, 4 ½ inches.

Sleepers, 493,056 lineal feet ; diameter, 4 ½ inches.

Rails in mine :—

12,035 feet of 56 lb. ; 17,280 feet of 30 lb. ; 75,178 feet of 18 lb.

DOMINION NO. 10.

This mine is in the Emery seam—4 feet 5 inches thick—roof, shale and sandstone, floor hard fire-clay. The shaft which is under the same bankhead as the slopes of Dominion No. 5, is 16 by 24 feet, 140 feet deep. The mine is worked longwall, face 4,100 feet long, with 55 gate-ways. The boxes hold one ton and weigh 1,120 lb. and 735 lb. The fan-shaft is 10 by 10 feet : the fan-house of wood, is 28 by 31 feet. The fan is directly over the shaft. The power that operates this mine is taken from the plant that operates Dominion No. 5. No gas has been found in the mine—280 Ackroyd & Best safety lamps are in use. The stoppings in the main air-way are concrete, the others are wood. There are 38,000 cubic feet of air a minute circulating, with a w. g. of .4 inch.

The ventilation is produced by a Stine fan, 8 feet in diameter. The fan is driven by a 12 feet belt from a 48 inch pulley, on a 9 by 14 inch Atlas engine, to a 24 inch pulley. A new lodgment was driven last year which holds 2,000,000 gallons of water. Two bore-holes were sunk from the surface—one for the discharge pipe, the other for the electric wires. The pump-house is being built, and a large turbine pump will be placed.

Development work at this colliery is as follows:—North deep was driven 400 feet, the levels are about to be started north and south off this deep. South levels have been driven 700 feet, and headways driven up 450 feet, forming a block of coal 450 feet long, and 200 feet wide, which is to be taken out by the longwall-retreating system. The main north levels have a long-wall-face of 1,700 feet, which has advanced 200 feet.

No. 1 north-level face is 900 feet long, and advanced 200 feet.

No. 2 north-level has a long-wall-face 1,700 feet, and has advanced 150 feet.

7 of the gate-roads have branch tail-ropes on them from the main haulage-road, hauling coal to the main level.

The output for the year was 91,966 tons. There were 17,859 lb. of bulldog powder used—5.15 tons of coal being produced for each lb. of powder.

There were used for brushing main deeps, levels and gate-roads 7,390 lb. of Rippite.

Officials :—

Robert Simpson, manager.

Joseph Boche, underground manager.

Employees :—

Main north level.....	55
No. 1 north level.....	35
No. 2 north level.....	70
North deeps.....	20
South side headways.....	20
	200 men

Surface Machinery :

See report Dominion No. 5 colliery.

Underground Machinery :

One Flory tail-rope engine, is placed at the pit bottom and is hauling the coal on the main north level, 2000 feet.

One Cameron pump (pit bottom) 12 by 7 by 24 inches.

One Cameron pump (No. 2 north landing) 14 by 9 by 12 inches.

One Knowles pump (“ “ “ “) 14 by 9 by 12 inches.

One Sinking pump,

12,950,000 gallons of water are pumped monthly.

Timber used during the year :—

Booms.....	1,462	lineal feet—diameter 7 inches.
Props.	444,055	“ “ “ 5 “
Sleepers....	49,356	“ “ “

Rails in mine :—

7,000 feet of 45 lb. 4,000 feet of 30 lb. 11,388 feet of 18 lb.

NORTH ATLANTIC COLLIERIES.

This mine is in the McAulay seam, on the north side of Cow Bay. The seam is 4 feet, 4 inches thick, good coal. There is a band of shale 10 inches thick, immediately over it. The shaft is 196 feet deep, 12 feet in diameter. The true dip is north 10 degrees east. The workings are all under sea, the rooms being 18 to 20 feet wide, the pillars 27 feet, varying with thickness of cover. There is no dust in the mine; it is damp and slightly gaseous. Open lights are in use. The officials and examiners use Marsaut safety lamps. The travelling road is in safe condition. The water for colliery use is pumped from Sand Lake to the colliery reservoir which holds 400,000 gallons. The fire-protection apparatus consists of fire-pump, hose and water barrels placed at convenient stations round the mine. There are two fans at this colliery—a Murphy, 8 by 4 feet, and a Walker 18 by 6 feet. The former is an emergency fan. The fan-drift is 10 by 12 feet, and the fan shaft 10 feet in diameter, w. g. 1.5 inch. The Walker fan is driven by rope geared 2 to 1—the Murphy fan is directly connected. The Walker-fan-house, 26 by 19 feet, is of cement—the Murphy-fan-house, 22 by 10 feet is of wood. The former is 45 feet from the shaft, and the latter 15 feet. Some of the stoppings are stone, most of them are of wood. There are 32,000 cubic feet of air a minute in circulation, one current.

Development Work has advanced as follows:—

Main slope driven 700 feet.
 No. 4 east levels, 200 feet.
 No. 1 west deeps, 150 feet.
 No. 2 west deeps, 500 feet.
 No. 2 west levels, 300 feet.
 No. 3 west levels, 1460 feet.

The output during the year was 89,006 tons. To produce this, 20,400 lb. of bulldog powder was used, which gave 4.363 tons of coal for each lb. of powder.

The officials are :

T. G. MacKenzie, General Manager.

Joseph Mann, Manager.

Men employed underground, 180 : Surface, 66.

Surface Machinery :

One hoisting engine, 12 by 15 inches, drum 5 feet diameter, geared 5 to 1.

One endless haulage, 13 by 18 inches, driving wheel 5 feet diameter geared 5 by 1.

Two small engines, 6 by 8 inches, 14 inch drum, geared 6½ to 1.

One engine, 8 by 10 inches, 16 inch drum, geared 6 to 1.

One screen engine, 8 by 10 inches, drum 16 inches, geared 6 to 1.

One Rand compressor, steam 20 by 36 by 48, air 20 by 32 by 48, capacity 3,200 cubic feet a minute.

One Ingersoll compressor, steam 12 by 14, air 12 by 12, capacity 600 cubic feet a minute.

One Blake circulating pump, 10 by 12 by 4½ inches.

Three B. & W. boilers, 350 h. p. each.

The bankhead is of wood—the old type of cage is used. The weight of coal each hoist is 2000 lb., empty box 900 lb.

Machinery underground :

One Jeansville pump, 14 by 12 by 6 inches.

One Cameron pump, 15 by 10 by 33 inches, at No. 2 east level lodgement.

One Cameron pump, 12 by 7 by 12 inches.

One Smart-Ebby, 12 by 5 by 12 inches.

One Northey pump, 5 by 6 by 3½ inches.

One International pump, 6 by 6 by 4 inches, No. 3 east level.

The pumps at the pit bottom are driven by steam, the others by compressed air.

The water output each month is 11,534,400 gallons.

Timber used during the year :

Booms..... 1,200 lineal feet, 7 inches diameter.

Props. 117,346 “ “ 4½ “ “

Sleepers 16,800 “ “

Rails in mine :

29,920 feet of 35 lb. 41,600 feet of 18 lb.

Yours truly,

JOHN J. McNEIL,

Deputy Inspector of Mines. □

*Report of Accidents in Coal Mines of Nova Scotia (Cape Breton, Southern) Year ended
September 30th, 1910.*

No.	Date. 1909.	Mine.	Name.	Age.	Remarks.	Fatal.
1	Oct.	5. Dominion	No. 7 Neil McDonald...	14	Flagger. Leg broken.	
2	"	"	10 Geo. Kitley	30	Miner. Fall of stone. Killed.	1
3	"	"	4 Thos. Fraser	35	Miner. Fall of stone. Back injured.	
4	"	"	5 Duncan McLeod.	20	Engine driver. Caught under engine crank. Toe crushed.	
5	"	"	4 Nor. J. McDonald	20	Driver. Fall of stone. Thigh fractured.	
6	"	"	4 Alex. Southkick..	19	Loader. Fall of coal. Thigh fractured.	
7	"	"	5 Robert McDonald	45	Miner. Fall of stone at working face. Foot crushed.	
8	"	"	7 Willis Washam ...	30	Shooter and loader. Fall of stone at working face. Shoulder and foot injured.	
9	"	"	4 John A. McNeil...	16	Driver. Fall of stone. Killed.	1
10	"	"	4 Herbert Turner ..	20	Shot-firer. Fall of stone. Foot crushed.	
11	Nov.	"	3 Theodore Lever...	30	Laborer. Foot caught in picking belt. Foot crushed.	
12	"	"	10 Chas. McKenzie..	24	Shiftman. Fall of stone. Leg broken.	
13	"	"	10 Petro Bergonn....	43	Loader. Fall of roof coal. Foot crushed.	
14	Dec.	"	2 Max Seaman.....	11	Not employed. Electric wire. Killed.	1
15	"	"	9 Gideon Braggs....	25	Shooter and loader. Fall of coal. Died injuries.	1
16	"	"	2 Bernard Fowler...	19	Laborer. Foot jam'd between boxes. Foot inj'd.	
17	"	"	2 Wm. Kane	19	Driver. Run over by full box. Crushed foot.	
18	"	"	7 John E. McKay..	45	Shot-firer. Fall of stone. Leg injured.	

19	"	22.	Dominion No. 5	Chas. H. Ross....	37	Loader.	Fall of stone.	Head and back injured.
20	"	22.	"	5 John H. McNeil..	26	Helper.	Fall of coal.	Thigh fractured.
21	"	23.	"	2 Henry Earl.....	25	Driver.	Caught betw'n box and boom.	Back inj.
22	1910.							
22	Jan.	19.	"	5 M. A. McMillan..	36	Mach. run.	Fall of coal from side of crosscut.	
23	Feb.	1.	"	4 Andrew Bossman	21	Hip and shoulders injured.		
24	"	11.	"	2 John Farrell.....	47	Hand-pick miner.	Struck by coal.	Leg broken below knee.
25	"	14.	"	2 Henry Warner....	35	Miner.	Fall of stone.	Compound fracture of right thigh and collar bone.
26	"	14.	"	2 Ken. McDonald..	40	"	Cage struck too hard on bottom.	Fractured knee joint.
27	"	14.	"	2 Herbert King....	16	Laborer.	Driver lost control of engine	Knee and ankle frac. Thigh fractured.
28	"	14.	"	2 John Sutherland..	24	"	when cage was about 50 ft. from bottom, owing to a bolt coming out of reversing gear.	Knee injured.
29	"	14.	"	2 Nornan McVicar	40	Miner.		Hip and knee disloc.
30	"	14.	"	2 Tom C. Hart.....	40	"		Leg fractured.
31	"	14.	"	2 Neil Farrel.....	20	"		Shock.
32	"	14.	"	2 Andrew Sampson	24	Laborer.		Shock.
33	"	14.	"	2 Angus Morrison..	28	Miner.		Shock.
34	"	14.	"	2 Anthony Steele...	40	"		Shock.
35	"	14.	"	8 A. J. White.....	24	Miner.	Struck by fall. coal.	Scalp wound, inj. foot
36	"	15.	"	8 Robt. McLeod....	36	Shot-firer.	Struck by fall. coal.	Both ankles frac.
37	"	15.	"	8 N. J. McDonald..	50	Miner.	Horse fell on him.	Injured foot.
38	"	25.	Gowrie	D. M. McDonald.	29	Miner.	Fall of stone.	Collar bone broken.
39	Mar.	7.	"	Neil McVicar.....	15	Driver.	Caught between box and roof.	slightly hurt internally.
40	"	16.	Dominion No. 2	Gust. Alexander..	38	Miner.	Fall of coal off rib.	Fatally injured.
41	"	18.	"	7 Dan P. McRae...	30	Machine runner.	Fall of stone.	Leg fractured.

*Report of Accidents in Coal Mines of Nova Scotia (Cape Breton, Southern) Year ended
September 30th, 1910.—(Continued.)*

No.	Date.	Mine.	Name.	Age.	Remarks.	Fatal.
42	Mar. 26.	Dominion No. 7	Lauchie McMullin	33	Shooter and loader. Fall of stone. Head and back hurt.	
43	April 1.	"	Octave Dugsag...	47	Miner. Fall of stone. Crushed foot.	
44	" 1.	"	Charles Yates.....	31	Shiftman. Fall of stone. Foot injured.	
45	" 16.	"	Anthony Kuss....	38	Miner. Fall of stone, face. Died of injuries.	1
46	" 23.	"	Edward Skane....	25	Loader. Fall of stone, face. Slightly bruised.	
47	" 28.	"	Jno. J. Chisholm.	29	Miner. Fall of stone, pillar. Killed.	1
48	" 30.	"	James Farrell....	30	Miner. Shot fired when connecting wire. Left arm blown off.	
49	" 30.	"	John McSarley...	40	Miner. Fall of coal in pillar. Leg broken.	
50	" 30.	"	Joseph Menzel...	29	Miner. Fall of coal in pillar. Leg injured.	
51	May 6.	"	Louis Bonnell....	25	Miner. Fall of coal at face. Killed.	1
52	" 11.	"	Curtis Ross.....	16	Not employed. Live wire. Killed.	1
53	" 14.	"	Michael McInnis.	63	Miner. Fall of coal, face. Leg broken, foot hurt.	
54	" 17.	"	Edward Moore....	30	Miner. Fall of coal, face. Face cut, leg broken.	
55	" 17.	"	Herman Legraff..	16	Driver. Fell under box. Leg fractured.	
56	" 25.	"	J. W. Spendlane..	15	Driver. Struck by horse and shaft. Side inj'd.	
57	" 30.	"	Woxiner Kitchuk	17	Loader. Jammed between box and face. Slight bruises.	
58	June 7.	"	Hector McKenzie	18	Helper. Electric switch. Killed.	1
59	" 7.	"	James Bradwell ...	32	Shooting and loading. Fall of stone. Killed.	1
60	" 10.	"	Murd. Morrison...	50	Overman. Fall of stone. Ribs broken.	

61	June	14.	Dominion No. 2	John Connors.....	70	Laborer. Run over by motor. Died few hrs. after.	1
62	"	16.	Gowrie.....	William Andrews.	36	Miner. Fall of coal. Killed.	1
63	"	16.	Dominion No. 4	Stan Stanoff.....	29	Miner. Fall of coal. Ankle fractured.	
64	"	21.	"	8 Frank LeClark....	21	Landing tender. Caught between boxes. Leg slightly injured.	
65	"	21.	"	4 Thomas Casey....	56	Overman. Caught between box and prop. Two ribs fractured.	
66	July	2.	Dominion No. 8	Joseph McKenzie.	16	Driver. Kicked by horse. Nose fractured.	
67	"	4.	"	2 John Cameron. ...	44	Miner. Premature shot. Face slightly injured.	
68	"	5.	"	2 Winst'n Hardigan	22	Trapper. Fall of stone at face. Foot injured.	
69	"	9.	"	2 Joseph Coydue....	26	Miner. Struck by coal from shot. Abdomen injured.	
70	"	16.	Gowrie	James McGrath..	26	Road boss. Runaway box. Accidental death.	1
71	"	16.	Dominion No. 4	Jno. A. McDonald	15	Oilier. Crank shaft. Finger smashed.	
72	"	18.	"	2 Thomas Grant...	24	Loader. Fall of coal from face. Shoulder inj'd.	
73	"	18.	"	4 Gustave Brean....	16	Coupler. Caught between boxes. Arm broken.	
74	"	26.	"	2 Jos. Varcheresse..	28	Miner. Fall of coal at face. Scalp wound.	
75	"	27.	"	2 John C. McIntyre	19	Roller man. Caught between switch and motor. Fingers smashed.	
76	"	27.	"	10 D. A. McDonald..	29	Brusher. Fall of stone from rib. Leg fractured.	
77	"	29.	"	3 Edward Snow.....	28	Miner. Cutting out shot. Head and body inj'd.	
78	"	29.	"	3 Sam Snow.....	26	Miner. Shot exploded by pick striking detonator. One eye blown out.	
79	Aug.	1.	"	10 Neil Currie.....	42	Brusher. Fall of stone. Back hurt.	
80	"	2.	"	2 Dan S. McLean...	42	Miner. Shot-firer fired shot while deceased was connecting wire. Killed.	1
81	"	16.	"	8 Alex. Smith	20	Car shunter. Caught between cars. Foot slightly injured.	

*Report of Accidents in Coal Mines of Nova Scotia (Cape Breton, Southern) Year ended
September 30th, 1910.—(Continued.)*

No.	Date.	Mine.	Name.	Age.	Remarks.	Fatal.
82	" 24.	Dominion No. 2	Frank Long.....	40	Miner. Fall of coal. Leg and ribs broken.	
83	" 27.	" "	Wallace Peters...	22	Car runner. Caught between cars. Finger smashed.	
84	Sept. 3.	" "	John Dickson	35	Miner. Struck by falling stone. Flesh wound, thigh.	

SYDNEY MINES,

November 19th, 1910.

HIRAM DONKIN, ESQ., C. E.,

Deputy Commissioner Public Works and Mines,

Halifax, N. S.

DEAR SIR:—I beg leave to submit my annual report on the coal mines in the northern division of Cape Breton County for the year ended September 30th, 1910; also report of Dominion No. 1, No. 12, No. 14 and No. 15 collieries in the southern district of Cape Breton County.

I am pleased to be able to report that the output at collieries in this district exceeded the output of last year by 245,034 tons.

It is the intention of the Dominion Coal Company to open three new collieries in the Low Point district. No. 16 colliery will be on the Lingan seam about 1,600 feet inland to the south of No. 12, and 400 feet to the eastward, running parallel to No. 12. No. 17 is on the Victoria seam, one mile to the west of No. 12, and No. 18 has been located on the Lingan seam one mile to the west of No. 16.

The Nova Scotia Steel and Coal Company has done considerable prospecting during the summer: from the crop of Sydney Main seam at No. 3 colliery to the trial pit sunk on Third seam, 3,280 feet.

Depth of pit to the coal 20 feet 5 inches.

Thickness of Coal 4 feet 1 inch.

From trial pit on Third seam to trial pit on Fourth seam, 940 feet.

Depth of pit to coal 15 feet 5 inches.

Thickness of coal 4 feet 1 inch.

From trial pit on Fourth seam to bore-hole on Fifth seam, 635 feet.

Depth of bore-hole to coal, 16 feet 8 inches.

Thickness of coal 2 feet 6 inches.

I regret to have to report six fatal accidents, three caused by falls of stone, two by falls of coal and one by a premature shot. There were also two men killed on the railway at Dominion No. 12, between coal hoppers.

The Mines Regulation Act has been strictly enforced, and to the best of my knowledge every precaution is taken to prevent accidents.

The Dominion Coal Company, and the Nova Scotia Steel and Coal Company have safety lamps in all their collieries.

DOMINION NO. 1 COLLIERY.

This mine is entered by a shaft on the Phalen seam near the southern end of Lingan Bar. The shaft is 154 feet deep, 10½ by 24 feet. It is divided into two compartments—one of which is used for a man-shaft and is walled off from the coal-shaft. The depth of the material shaft is 135 feet, 11 by 18 feet. The fan-house is 10 feet from the fan-shaft. The average w. g. is 2 inches—average thermometer 56 degrees, barometer 29.90 inches. The bankhead is of wood, pit frame of steel. The man-cage is equipped with Omeroid safety hooks. The working load in the coal shaft is 9 tons. There are automatic safety switches at all landings in the mine. The coal is conveyed to boilers by a 14 inch Robbins belt conveyor. There is a fire brigade of 35 members.

The fan-shaft is 11 feet in diameter, 143 feet deep. The mine is gaseous, roof and floor are shale, seam pitches 1 in 14. The direction of the true dip is north 89 degrees east, the coal is 8 feet thick, the mine is damp, except in a few places. Accumulations of dust are loaded into boxes and sent to the surface. There is no spraying system in the mine. The method of working is bord-and-pillar, rooms 20 feet wide, pillars from 25 to 40 feet. Most of the pillars are now 40 feet thick. The timber used is 5 inches at the small end. The method of timbering is props-and-caps: sometimes props and booms, according to the condition of the roof. The

timber is gotten in the province. The water for colliery use is supplied from Phalen's Brook about a mile away. The reservoir on the surface holds 8,000,000 gallons, also located about a mile from the colliery.

Development Work.

There were 18,093 lineal feet of narrow work driven during the year as follows:—

South deeps driven 318 feet, total distance 8,718 feet.

Angle deeps driven 614 feet, total distance 9,314 feet.

North deeps driven 531 feet, total distance 531 feet.

No. 9 levels, north angle deep, driven 146 feet.

No. 10 levels, north angle deep, driven 885 feet.

No. 11 levels, north of angle deep, driven 775 feet.

No. 12 levels, north of south deep, driven 752 feet.

No. 13 levels, north of south deep, driven 759 feet.

No. 1 headway, driven off No. 10 levels, north of angle deep 40 feet.

No. 3 headway driven off No. 10 level, north of angle deep, 555 feet.

No. 4 headway, driven off No. 10 level, north of angle deep, 621 feet.

No. 1 headway, driven off No. 11 level, north of angle deep, 468 feet.

No. 2 headway, driven off No. 11 level, north of angle deep, 251 feet.

No. 5 headway, driven off No. 11 level, north of south deep, 339 feet.

No. 6 headway, driven off No. 11 level, north of south deep 548 feet.

No. 3 headway, driven off No. 12 level, north of south deep, 416 feet.

No. 4 headway, driven off No. 12 level, north of south deep, 400 feet.

No. 9 levels, north of angle deep are dipping toward the north, .5 per cent. for 150 feet. This grade still continues.

No. 10 and 11 levels north of the angle has one per cent grade north for 200 feet.

There are 163 working places in the mine, as follows:—

Two sets of deeps. 12 levels, 10 headways, 101 rooms, 38 pillars.

The output was 573,365 tons, an increase over the previous year of 28,866 tons.

There were 397,450 tons mined in rooms, 99,293 tons mined in pillars, and 76,622 tons mined in narrow work. There were used to produce this coal, 88,647 lb. of bulldog powder, 2,741 lb. of excellite, and 1,259 lb. of monobel, being 6.18 tons of coal for each lb. of powder used.

Surface Machinery.

One hoisting engine 20 ½ by 54 inches.

One man engine 15 by 30 inches.

Two haulage engines 26 by 60 inches.

Three Ingersoll compressors, capacity each 2,500 cubic feet a minute.

One Dixon fan, 24 by 6 feet 6 inches with engine 18 by 24 inches and one auxiliary 16 by 30 inches.

Two Murphy fans, one 12 by 6 feet, with engine 19 by 16 inches—the other 8 by 5 feet, with engine 10 by 12 inches. These fans are directly connected.

Dixon-fan-house, brick, 68 by 29 feet.

One Murphy-fan-house, wood, 23 by 15 feet.

One Murphy-fan-house, wood, 16 by 12 ½ feet.

Two 318 h. p. B. & W. boilers.

Five 212 h. p. B. & W. boilers, total h. p. 1,696.

Coal is conveyed to boilers by one Robbins belt conveyor, 14 inches.

Coal passes over one 1¼ inch bar-screen, thence to shaker screen ¾ inch mesh, thence to picking belt, 40 feet long by 5 feet wide.

One Underwriters fire-pump, capacity 500 gallons.

One Worthington fire-pump, capacity 500 gallons

1,200 feet 2½ inch rubber hose.

Chemical fire extinguishers in the surface buildings.

One 100 k. w. electric generator.

Underground Machinery.

Two 8 by 10 Flory engines.

One 8 by 10 Jencks engine.

One McDougall turbine pump, capacity 560 gallons a minute.

One McDougall turbine pump, capacity 400 gallons a minute.

One Northey duplex 20 by 8 by 24 inches, capacity 500 gallons a minute.

One spare McDougall turbine pump, capacity 550 gallons a minute, at borehole on No. 9 south.

McDougall pumps are operated by electricity. The Northeys are operated by air. The maximum water discharge, 105 gallons an hour. Total quantity of water pumped 15,550,000 gallons a month.

Haulage rope on south deep, 1 $\frac{1}{8}$ inch—17,824 feet.

Rope on angle deep, 1 $\frac{1}{8}$ inch, 19,144 feet.

Officials :—

John Munroe, manager.

James R. McNeil, underground manager.

Hector Campbell, asst. underground manager.

Andrew J. Scott, overman.

John C. Nicholson, overman.

Andrew Irvine, overman.

Archie T. Ferguson, overman.

Employees underground :

Men.....	439
Boys.....	51

Employees surface :

Men.....	92
Boys.....	12

Timber used during the year :

Booms....	42,147	lineal feet,	diameter 8 inches.
Props.	824,024	"	" " " 6 "

Rails in mine :—

29,451 feet of 56 lb. rails.

16,310 feet of 30 lb. rails.

92,966 feet of 18 lb. rails.

I visited this colliery 24 times during the year.

DOMINION NO. 12.

These slopes are on the Victoria seam, a half mile from the shore, and are down 2,788 feet. Plane-haulage is used; the diameter of rope is $\frac{7}{8}$ of an inch. Twelve cars are hauled each rake; weight of empty car 1,000 lb., capacity 1,900 lb.

The seam is 6 feet 4 inches thick, soft coal, pitching 13 degrees direction of true dip, north 38 degrees and 40 minutes east. The roof and floor are hard freestone. The mine is gaseous and damp. There are 77,750 cubic feet of air a minute circulating around the workings—w. g. .7 inch, thermometer 50 degrees. The air is divided once at the bottom of the slope and returns along the working faces to the fan-shaft. The air-way is 11 by 6 feet. There are two air-crossings, 6 by 10, feet over the main and back slopes, 150 feet from the mouth of the slope. The fan-shaft is 11 by 18 feet, 40 feet deep. The fan-drift, area 60 feet, length 27.5 feet. The fan is driven by five four-inch ropes, running over a 12 feet grooved fly-wheel, and over a five feet grooved wheel on the fan-shaft. The length of each rope is 55 feet.

The fan-house $18\frac{1}{2}$ by $14\frac{1}{2}$ feet, and 8 feet high, is of steel, cupola 4 feet. Distance from air-shaft 30 feet.

The engine-house 45 by 12 feet, is of brick, with concrete floor and roof. Brattice cloth and board stoppings are used to conduct the air to the working places. The mine is supplied with Ackroyd & Best safety lamps.

An engine-house 42 by 50 feet is being built of brick and steel. A bankhead 450 feet long, 23 feet wide, 50 feet high, of hard pine, floor laid with concrete, roof and sides covered with corrugated iron. There have been built this year, 15 new double houses, 24 by 42 feet. There are 53 single cottages and 34 double houses at this colliery.

The water supply is from Daley's lake. There are two reservoirs on the surface, one with a capacity of 6,250,000 gallons, and the other 275,000 gallons. In case of fire a Northey duplex pump, size 14 by 7 by 12 inches, is kept on hand, and connected with reservoir.

The screening plant built by the Brown Machine Co., New Glasgow, consists of two tipples, two picking belts, one loading belt, two double shaker screens; one has an opening of two inches, the other of $\frac{3}{4}$ of an inch. This plant is driven by a five-tern

continuous rope-drive, 4 inches in circumference; the engine is a 12 by 12 inch Goldie.

A new winding engine is to be erected this winter—the old one will be removed to one of the new collieries.

There were 12,078 lineal feet of narrow work driven during the year, as follows:—

Main and back slope driven 562 feet, total distance 2788 feet.

No. 2 west levels driven 505 feet, total distance 1306 feet.

No. 3 west levels driven 661 feet, total distance 1115 feet.

No. 2 west levels driven 275 feet, total distance 275 feet.

No. 2 east levels driven 831 feet, total distance 1778 feet.

No. 3 east levels driven 877 feet, total distance 1439 feet.

No. 4 east levels driven 456 feet, total distance 456 feet.

No. 2 west level, No. 1 balance driven 366 feet, No. 2 balance 260 feet.

No. 3 west level, No. 1 balance driven 181 feet, No. 2 balance 170 feet.

No. 2 east level, No. 1 balance driven 223 feet, No. 2 balance 214 feet.

No. 3 east level, No. 1 balance driven 301 feet, No. 2 balance 292 feet.

There are 94 working places in the mine: the method of working being bord-and-pillar, width of rooms 20 feet, pillars 20 feet. Size of pillars to be increased according to cover.

A bore-hole 16 inches in diameter, was put down 200 feet from the shore to the Victoria seam, 542 feet. A lodgment is to be driven on the east side of the main slope, 2,700 feet from the surface; this lodgment is to have a capacity of 3,000,000 gallons.

An electric pump will be placed to pump the water to the surface through this hole.

The output was 119,451 tons, an increase over the previous year of 83,857 tons.

The quantity of explosive used to produce this amount was 18,344 lb. of monobel powder—about 6.5 tons of coal for each lb. of powder used.

The slopes, levels and balances are timbered with booms hitched into both walls; props and caps are used in the rooms. Average diameter of props 6 to 8 inches, booms 8 inches.

Officials.

Angus R. McDonald, manager.

Wm. R. McDonald, underground manager.

Thos. Kavanagh, overman.

Archy R. McLellan, overman.

Duncan O'Handly, examiner.

George McLean, examiner.

Melvin Larson, chief engineer.

Wm. White, surface foreman.

There are 174 men and 7 boys employed at this colliery; 137 men and 4 boys in the mine, and 37 men and 3 boys on the surface.

Surface Machinery.

One Jencks hoisting engine, 14 by 20 inches, with two 8 feet friction drums, spur 170 teeth, pinion, 20 teeth.

One 8 by 10 inch Robb-Armstrong engine—dynamo.

One 8 by 8 inch Matheson engine, supplying power to forge and carpenter-shop.

One 16 by 15 inch Rand compressor.

One fire-pump, Northey duplex, 14 by 7 by 12 inches.

Two batteries, B. & W. boilers, 840 h. p.

Underground Machinery.

One Rand and three Hardy undercutting machines.

One Cameron pump at main lodgment, 2,200 feet from the surface, size 12 by 6 by 13 inches.

Two Cameron pumps, 7 by 4½ by 12 inches, at the face of the slope; maximum quantity per hour, 6,000 gallons.

The pumps are operated by air: the lodgment holds 234,000 gallons. Two dams—12 by 7 feet, 18 inches thick; total quantity of water pumped each month 3,240,000 gallons.

DOMINION NO. 14.

These slopes are sunk one mile to the east of No. 12 colliery, and are about a half a mile from the shore. The average thickness of the seam is 6 feet, 7 inches. The mine is damp and gaseous, the coal is lying at an angle of 14.5 degrees. The direction of the true dip is north 38 degrees, 40 minutes east. The roof and floor are hard sandstone. The slopes, levels and balances are timbered with booms hitched into the walls. Props-and-caps are used in the rooms—average diameter of props 7 inches—diameter of booms 8 inches.

There are 76 men employed; 22 on the surface and 54 in the mine. The out-put was 35,185 tons, an increase of 24,373 tons over the previous year, quantity of explosives used 1,762 lb. excellite, being about 20 tons to each lb. of powder used.

9,027 lineal feet of narrow work has been driven as follows:

Main slope and back slope, 606 feet, total distance, 1,531 feet.

No. 1 west levels, driven 647 feet, total distance, 843 feet.

No. 2 west levels, driven 407 feet, total distance, 407 feet.

No. 1 east levels, driven 902 feet, total distance, 902 feet.

No. 2 east levels, driven 329 feet, total distance, 329 feet.

No. 1 balance off No. 1 east level, driven 349 feet, total distance 449 feet.

No. 2 balance off No. 1 east level, driven 450 feet, total distance 459 feet.

No. 1 balance off No. 1 west level, driven 438 feet, total distance 438 feet.

No. 2 balance off No. 1 west level, driven 422 feet, total distance 422 feet.

There are 70 working places, the mode of work will be board-and-pillar on the same principle as No. 12. Ackroyd & Best safety lamps are used.

There are 37,000 cubic feet of air a minute in circulation.

The new bankhead which was under construction last year is completed. It is 360 feet long, 33 feet wide, and 33 feet high, with an ell attached to the bankhead, 70 feet long, 43 feet wide and 33 feet high. The building is hard pine, floor laid with concrete, and the roof and sides covered with corrugated iron.

There are two revolving tipples, two shaker screens, and a creeper 200 feet long, operated by an electric 30 h. p. motor.

The boiler house is 14 by 13 feet, of brick, fan-house 17 by 49 feet, of brick, wash-house 30 by 60 feet, of wood, oil-house 12 by 15 feet, of wood, ware-house, 20 by 30 feet, lamp-house 16 by 34 feet, forge 20 by 32 feet, carpenter's shop, 20 by 30 feet.

There are six double houses, 17 single houses, one manager's house, and one underground manager's house, all built this year, making 73 tenement houses at this colliery.

Officials :

Bart Connors, manager.

Wm. T. Hamilton, underground manager.

Henry Oliver, overman.

Charles Walker, deputy overman.

John Hall, deputy overman.

Alex. Campbell, deputy overman.

Archie McDonald, chief engineer.

Surface Machinery :

One Jencks engine, 24 h. p.

Two Matheson portable boilers.

One upright tubular boiler.

One Walker fan (being erected) 18 feet diameter, blades 4 feet 3 inches, capacity 150,000 cubic feet, w. g. 2 inches.

Two picking belts, 40 by 5 feet, operated by 25 h. p. electric motor.

One loading belt, 40 by 5 feet, operated by 25 h. p. electric motor.

Underground Machinery :

One Cameron pump, 16 by 9 by 33 inches. 1,400 feet from the surface capacity 400 gallons a minute.

Two pumps, 7 by 4½ by 12 inches, face of slopes, pumps operated by air, capacity of lodgment 112,000 gallons, quantity of water pumped a month 2,160,000 gallons.

1,400 feet of 6 inch pipe, from surface to lodgment.

Timber used during the Year :

Booms 70,640 lineal feet.
Props 5,607 " "
Sleepers 22,178 " "

Rails in Mine :

800 feet of 30 lb. rails, 4,572 feet of 18 lb. rails.

I visited this colliery 10 times during the year.

DOMINION NO. 15.

This colliery is about 3,700 feet from the shore line, and 400 feet east of No. 14 colliery. The slopes run parallel with No. 14 slope and are on the Lingan seam, down about 560 feet.

A concrete arch is being built over the mouth of the main slope, 70 feet long, 12 feet wide, 7 feet high, 14 inches thick. The boiler-house under construction, last year, has been completed, and two batteries of Matheson return tubular boilers are now in use. 1,400 feet of 6 inch air pipe has been laid between this colliery and Dominion No. 14, for air supply. The air supply for No. 14 is furnished by this colliery. A wooden compressor house 17 by 35 feet, a wash-house 15 by 30 feet, and a lamp-house, 11 by 15 feet, have been built. Ackroyd & Best safety lamps are used. The quantity of air in circulation is 13,000 cubic feet a minute.

Development.

The main and back slopes were driven 560 feet, air course on west side driven 220 feet, air-course on the east side, 220 feet, air-course on east side, up-hill 220 feet. air-course on west side, up-hill, 40 feet. An air-shaft on west side was sunk 42 feet, size 14 by 17 feet. The out-put was 6,168 tons. Quantity of explosives used 1,218 lb. of excellite and 609 lb. monabel $3\frac{1}{2}$ tons to each lb. of powder used. There were 37 men employed, 15 on the surface and 22 in the mine.

Officials :

Bart Connors, manager.

James Connors, underground manager.

Archie McDonald, chief engineer.

Michael Morrison, deputy overman.

Surface Machinery.

Two batteries of Matheson return tubular boilers.

One Norwalk compressor.

Underground Machinery.

One Cameron pump, 14 by 7 by 18 inches, capacity 250 gallons a minute.

SYDNEY No. 1.

This shaft is 680 feet deep, 13 feet in diameter, man-shaft 11 feet in diameter. The bank-head is of wood, pit-head frame of steel. There are detaching hooks on the shaft-ropes and safety catches in the pulley frames.

There are 860 men employed, 725 in the mine and 135 on the surface. The out-put was 254,748 tons. Of this quantity 76,488 tons were mined in rooms and 120,180 in pillars; 58,080 in narrow work. The quantity of explosives used was 24,368 lb. of compressed powder; about 10 tons of coal to each lb. of powder used.

Two tubs of coal are hoisted at one time. They are taken from the cage by hand and weighed on a quick reading platform scale. The coal is dumped by means of a hand-operated revolving tippie, on to a bar-screen having an opening of $\frac{3}{4}$ of an inch—the coal being separated into two sizes. The screens deliver the coal to a combined picking-belt and elevator where it is cleaned and elevated to load into 15 ton hoppers. The ventilating fans are located at No. 5 colliery on the same seam, about 3,000 feet from No. 1. Fan-drift 34 feet by 80 feet area, fan-shaft 10 feet diameter. There are 75,000 cubic feet of air a minute in circulation. The air is divided at the pit-bottom. The split going south is one continuous current along the working faces: it returns through the old workings to the fan-shaft at No. 5 colliery. The air going north is divided into three splits, and is conducted around the faces to the main return, thence to No. 5 colliery. The air-way is 5 feet 6 inches by 9 feet. Wood, and stone stoppings, and the ordinary tarred brattice-cloth are used.

The system of work is bord-and-pillar, bords 17 feet wide, pillars 60 feet thick. The coal is all mined by hand-picks. The seam is from 5 to 6 feet thick. The coal is soft and gaseous. The

roof and floor are shale. Some districts of the mine are dry; water tubs are used for spraying. The pitch is 1 in 11—direction of true dip south 80 degrees east. The south side is operated by endless haulage, 9,240 feet long. The haulage is in the form of a loop, and has a little more than 25,000 feet of rope in service; size of rope $1\frac{1}{8}$ inch. The north side is operated by a plane haulage—two ropes 7,200 feet long, 30 cars in each rake, weight of empty cars 850 lb., capacity 1,500 lb. The coal is hauled to these ropes by horses or small haulage engines.

Development.

Deeps driven off Shinner's level,.....	396 feet.
Shinner's level driven	231 "
No. 2 north levels driven	396 "
No. 1 south level "	231 "
No. 6 " " "	330 "
Barrier-level, south	198 "
" " north	198 "
No. 1 south deeps, driven	231 "

The Marsaut safety-lamp is used. The thermometer averages 55 degrees, and the barometer 30 inches.

Officials:

John W. Johnston, manager.

David Brown, underground manager.

Edward Lockman, underground manager.

Duncan Jardine, overman.

Alexander McDonald, overman.

Thomas Merritt, overman.

Michael Sullivan, overman.

Surface Machinery.

One hoisting engine, double, 36 by 60 inches, drum 18 feet in diameter, 7 feet wide. Steam 60 lb. pressure.

One man-engine, 16 by 30 inches, connected to conical drums, equipped with regular and safety-brakes.

One compressor, steam, 24 by 46, air 26 by 42, stroke 54 inches, capacity 4,000 cubic feet of air a minute, at 55 revolutions.

The haulage engine and compressor are connected to a 12 and 17 by 19 by 15 duplex Worthington jet-condenser.

Six 272 h. p. B. & W. boilers at 120 pressure; three of these use the waste gas (as fuel) from 30 Bauer coke ovens.

One 108 by 54 inches Sturtevant induced-draft fan, directly connected to an 8 by 10 engine, used to draw the gases from the coke ovens through these boilers, and into a round brick-stack 125 feet high, 8 feet in diameter. This stack is used also to supply draft for the other three boilers which are fired with a mixture of slack coal and coke-breeze.

One motor-driven Capell fan, 20 feet in diameter, 5½ feet wide, driven by a 120 h. p. direct current, 220 volt motor, geared with a 4.2 to 1 reduction to fan; average speed of fan 100 revolutions a minute, capacity 120,000 cubic feet a minute, w. g. 3 inches.

Spare ventilating equipment :

One 30 by 10 Walker-Guibal fan, 60 revolutions a minute, directly connected to a 22 by 24 inch engine, capacity 120,000 cubic feet of air a minute—w. g. 3 inches. This fan is steam driven; the Capell fan is driven by electricity.

Underground Machinery :

One No. 6 Cameron pump, 8 by 12 by 5 at No. 3.

Seven Northey duplex pumps, 5½ by 6 by 3½, placed at intervals between the bottom and face of the deeps, pumping to the lodgment at pit bottom.

One 15 by 28 by 8½ by 24 inch Jeansville pump connected to an 8 by 12 by 12 Cameron jet condenser, capacity 600 gallons a minute, under a head of 640 feet. This pump pumps from the bottom lodgment to the surface. The pumps are operated by steam and compressed air. The reservoirs contain 217,300 gallons. The water supply is from Pottle's Lake. In case of fire, connection can be made with a hydrant on the town main. There can be

discharged from the mine in an hour 36,000 gallons—
25,920,000 gallons a month.

Timber used during the year.

1,376,534 lineal feet of sleepers, props and booms.

Props, 4½ inches, booms 8 inches diameter.

Rails in Mine :

82,368 feet of 28 lb. 60,648 feet of 18 lb. 29,064 feet of 12 lb.

I visited this colliery 16 times during the year.

SYDNEY, NO. 2.

This mine is about 950 feet north-west of No. 1. There are 4 slopes, 7 feet wide, sunk on the Loyd's Cove seam. This seam overlies the main seam. Endless haulage is in two of these slopes : the empty cars go down No. 1 and the full cars come up No. 2 slope. No. 3 slope is used for a traveling road and pipe line, and No. 4 slope is used for return air-way. The cover at the shore line is 104 feet. On account of this thin cover the first lift is 3,400 feet from the crop line, in order to give 450 feet of cover. The crop line is 1,600 feet from the shore line. The seam is from 5½ to 6½ feet; coal is soft and gaseous. The mine is damp; pitch 1 in 11. Direction of true dip, east. The roof and floor are shale.

An endless haulage system takes the coal out of the mine, and on to the bankhead, which is about 1000 feet from the mouth of the slope. The tipple, screens and picking belt arrangement is in duplicate; each set being capable of handling about 75 tons of coal an hour. The full tubs enter a hand-operated revolving tipple, which empties the contents into a steel weigh-tank suspended on a special tank scale, the net weight of the coal being registered in the scale house. The coal after leaving the weigh-tank passes over a bar-screen having an opening of two inches. The coal passing through the bar screen is again screened by a square mesh knocking screen and is thus separated into three sizes. The coal passing through the bar-screen and over the ¾ inch screen is delivered into cars. The two-inch coal and the large screen coal is delivered on the picking belt, where it is cleaned and transferred to the c.s. The picking belt has a movable end so arranged that it can be lowered into the bottom of a 15-ton car; this prevents breakage of the coal. This movable end is also used in an elevated

position for loading box cars by means of a special collapsing chute.

The slope is 4,800 feet long and 7 feet wide, pitching 1 in 11. The rope is $1\frac{1}{8}$ inch in diameter. The empty cars weigh 1080 lb. and hold one ton.

The system of working is bord-and-pillar; rooms, 18 feet wide; pillars, 23 to 25 feet, according to cover. Cross-cuts are driven every 60 feet. The coal is all mined by machines of the Hardie and Whitcomb type. Compressed air is supplied from No. 1 colliery.

The system of timbering is props-and-caps, sometimes props-and-booms—size of timber $4\frac{1}{2}$ inches at the small end. Water is supplied for the plant from Pottle's Lake. In case of fire connection can be made to a hydrant, placed on the water main.

On the 26th of December, 1909, a feeder of salt water was discovered in No. 1 room, No. 4, south side. The quantity of water coming in was about 100 gallons a minute; in a few days, the quantity was reduced to 50 gallons a minute. The management took the necessary precaution and sealed off this section of the mine, by building two dams, one in the main level, and one in the low level. These dams are built of timber one foot square, and cut into the walls 3 feet 6 inches, and into the pavement two feet, and seven feet into the roof. The dams are 12 by 15 feet. This section is now used for a permanent lodgment, and a Cameron pump 10 by 20 by 22 inches has been placed there.

There are six dams in the mine, 7 by 6 by 12 feet thick.

Development :

The main slopes were driven 300 feet.

No. 4 level, north	"	200	"
No. 6 " "	"	200	"
No. 5 level north	"	280	"
No. 5 " south	"	500	"
No. 6 " "	"	200	"

Headway driven off No. 4 level north 300 feet.

"	"	"	"	5	"	"	340	"
"	"	"	"	5	"	south	500	"

There are 276 men employed—26 on the surface and 250 in the mine.

There are 67 working places. Marsaut safety lamps are used. The output during the year was 86,555 tons. Of this amount 52,600 tons were mined from rooms, and 33,955 tons from narrow work. 40,161 lb. of compressed bulldog powder was used, or about 1 lb. of powder to every 2 tons of coal.

There are 22,500 cubic feet of air a minute in circulation.

Officials:

Archibald Ferguson, manager.

John Hunter, underground manager.

Hugh McLellan, overman.

Wm. Coll, overman.

Surface Machinery.

One endless haulage engine, 14 and 24 by 42 inches, geared 6 to 1. This engine is at No. 1 colliery. One fan-engine 9 by 9 inches, geared $3\frac{1}{2}$ to 1 to a 15 by 10 feet Capell steel plate fan, capable of producing 150,000 cubic feet of air a minute, w. g. 5 inches.

One Capell fan 15 feet diameter, 7 feet wide, w. g. .8 inch.

Underground Machinery.

One Cameron pump, 22 by $10\frac{1}{2}$ by 20.

One Northey pump, duplex, 18 by 8 by 12—1,400 feet from the slope mouth.

Three auxiliary pumps—one at each lift below this point, operated by compressed air.

Maximum quantity of water that can be discharged in an hour, 30,000 gallons.

Quantity of water pumped in 24 hours is 330,000 gallons.

Timber used during the year.

456,717 lineal feet of props and booms—props 4½ inches small end, booms 8 inches in diameter.

Rails in Mine.

18,329 feet of 28 lb. 30,505 feet of 18 lb.

I visited this colliery 13 times during the year.

SYDNEY, No. 3.

This mine is entered by three slopes driven parallel to one another, now down 8,885 feet. One is used for haulage, one for a travelling road, and the other for a return air-way. The seam is from 4½ to 5½ feet thick. The coal is gaseous, roof and floor are shale. The mine is dry in parts and water tubs with spray pipe are used. The seam dips 1 in 10 to 1 in 12. Direction of true dip, north 60 degrees east. The coal is mined by coal-cutting machines, of the puncher type, operated by compressed air. The method of working is bord-and-pillar, width of rooms, 20 feet, pillars, 25 to 40 feet; cross-cuts are driven about every 60 feet.

There are two sections in the mine, the north and south side. The air is divided once at the bottom of the slope, giving each side of the mine a separate air-split.

There are 48,985 cubic feet of air a minute in circulation.

The fan is 10 feet in diameter: the fan-drift has an area of 60 square feet, and is 29 feet long. Asbestos brattice cloth, board and brick stoppings are used. The system of timbering is props-and-caps. Booms, 4½ inches at small end. Props with booms, sometimes are used.

The output was 264,883 tons; 203,760 tons were mined in rooms, 61,123 tons were mined in narrow work. The quantity of explosives used was 40,161 lb. of bulldog powder. About 6½ tons of coal to each lb. of powder used. There are 590 men employed, 110 on the surface and 480 in the mine.

The endless haulage rope delivers the coal from the incline on to the bankhead. The tippie, screen and picking belt arrangement are all in duplicate, each being capable of handling about 75 tons of coal an hour. The full tubs are dumped by a revolving tippie into a steel weigh-tank suspended in a special scale tank. The net weight of the coal being registered in the scale house. The coal after leaving the weigh-tank passes over a bar-screen having an opening of two inches. The coal after passing through the bar-screen is screened over a $\frac{3}{4}$ inch square mesh knocking screen. This process separates the coal into three sizes, the coal passing through the bar-screen and over the $\frac{3}{4}$ inch screen is delivered on to a belt conveyor running across the screen house. The two-inch coal and the large screen coal is delivered to picking belts where it is cleaned and transferred to the cars.

The picking belt has a movable end so arranged that it can be lowered into the bottom of the 15-ton hoppers to prevent excessive breakage of coal; it is also used in an elevated position as a means of loading box cars.

Development Work.

No. 8 level, south, was driven 315 feet.

No. 9 " " " 445 "

No. 10 " " " 439 "

No. 11 " " " 543 "

No. 12 " " " 596 "

No. 13 " " " 871 "

No. 14 " " " 710 "

No. 1, levels, north of angle deep, 466 feet.

No. 2, " " " 356 "

New deeps driven off No. 2 level, north of angle deep, 450 feet.

Slant driven along barrier at the face of main deep, 802 feet.

There are 132 working places in the mine. No fatal accidents were reported at this colliery during the year.

Officials :

Angus Ferguson, manager.

John Hill, underground manager.

Daniel Brown overman.

Solomon Dewfall, overman.

Fred Jessome, overman.

Surface Equipment and Machinery.

Ventilating equipment in duplicate.

One steel Capell fan, 15 by 7 ½ feet, connected to a 12 and 24 by 24 tandem compound engine. This fan is delivering 48,900 cubic feet of air a minute, w. g. 2.2 inches.

One auxiliary fan, 10 by 6 feet, (Murphy) belted to a 12 by 12 side crank engine, running at 116 revolutions; it will furnish 59,900 cubic feet of air a minute, w. g. 1.5.

The bankhead is of wood.

One fan-house, 29 by 24 feet, of brick.

One fan-house, 23 by 16, of wood.

The distance of the former from the shaft, 23 feet. The latter (Murphy fan-house) is close to the shaft.

One tandem compound engine, 14 and 24 by 42 inches, used for driving endless haulage system, which takes all the coal to the surface.

Thirteen 5 by 6 double friction drum hoisting engines.

Two 7 by 9 inch double friction drum hoisting engines.

One 6 by 8 inch double friction drum hoisting engine.

These engines haul the coal out of the levels and headways to the main haulage road.

One Norwalk compressor, air cylinders, 38 by 22 inches, steam cylinders, 20 by 40 and 36 inch stroke, capacity 3,500 cubic feet of free air a minute at 80 revolutions.

One cross compound Walker compressor, air cylinders 36 and 22 inches, steam cylinders 21 and 40 inches, stroke 48 inches, capacity 3000 cubic feet of free air a minute at 58 revolutions.

This compressor is connected to a surface condenser, circulating water being taken from a salt water pond, and discharged through the boiler house for flushing the ashes to the dump.

Boilers.

Six 232 h. p. Sterling water tube boilers, pressure 150 lb. square inch; forced draft.

One 110 by 48 inch Sheldon steel plate fan directly connected to an 8 by 10 vertical centre crank engine, which furnishes 60,000 cubic feet of air a minute, when operating against a pressure of 1.5 oz. of water. This draft plant is used to facilitate the burning of wash-slack and coke-breeze which is used as fuel at this plant.

One brick lined steel plate stack, 110 feet high and 8 feet internal diameter, is connected to these boilers.

An endless haulage system takes the coal to the bankhead from the mine, haulage way is 8,885 feet long and 10 feet wide, pitch 1 in 11; rope 1 $\frac{1}{8}$ inch diameter. Weight of empty car, 1080 lb; capacity, 1 ton.

Booms, props and sleepers, lineal feet, 1,050,402.

Rails in mine :

38,080 feet of 28 lb. ; 118,420 feet of 18 lb.

I visited this colliery 15 times during the year.

SYDNEY No. 4.

This colliery is about two miles to the north-west of No. 3 colliery. Three slopes 10 feet wide are sunk on the Main seam. The seam is from 3 to 5 feet thick, the coal is soft and the mine is free from gas, the roof and floor are shale, pitch is 1 in 11, direction of true dip, east. The mine is damp; coal is mined by electric coal cutting machines. Four (class E, 6) Sullivan machines are used—Hand pick miners are also employed. Plane haulage is used, diameter of haulage rope $\frac{7}{8}$ of an inch. Pitch of slope 1 in 11, weight of empty car 1,080 lb., capacity 1 ton. Number of cars on rake, 20.

There are two miles of railroad laid from the main slope to the colliery. The bankhead and trestle-approach are about 800 feet long, reaching from the slope to the track. The mine cars are hauled out of the slope and backed down to the incline by gravity to a hand operated tippie. The coal passes over one bar-screen, and is divided into two sizes. The large coal is delivered into a picking belt 5 feet wide, and 43 feet long, having an adjustable jib. The smaller coal passes through the bar-screen, is conveyed by a Robbins endless rubber belt convey or to a slack hopper.

There are 46,795 cubic feet of air a minute in circulation—w. g. .7 inch. The air-way is $4\frac{1}{2}$ by 10 feet, length of fan-drift, 130 feet, area 48 feet. Fan-shaft is 8 feet in diameter. Sirocco fan-house is of concrete, $27\frac{3}{4}$ by $9\frac{1}{2}$ feet. Sturtevant fan-house is of wood. The distance of fan-house from air-shaft on the north side of the slope is 53 feet, and 77 feet from the air shaft on the south side of the slope.

Development Work.

Main slopes, driven 435 feet, total 2,400 feet.

No. 1 levels south driven 200 feet.

No. 2 " " " 410 "

No. 3 " " " 620 "

No. 4 " " " 360 "

No. 4 " north " 140 "

There are 64 working places in the mine.

There are 320 men employed, 45 on the surface and 275 in the mine. The output was 105,353 tons. 89,543 were mined in rooms, 10,080 mined in pillars, and 5,730 tons were mined in narrow places. Board stoppings and stone stoppings are used. The men work with the Marsaut safety lamps. In case of fire, water is supplied from a temporary reservoir. There were two accidents last year—one of which was fatal.

Officials :

Wm. Tobin, manager.

Robert Dickson, underground manager.

Fred McDonald, overman.

Robert Unsworth, overman.

Surface Machinery.

One haulage engine, 16 by 24 inches, drums 6 feet diameter, 2 ½ feet wide.

One Sturtevant fan, 6 feet diameter, width of blade, 3 feet.

One Sirocco fan, 4 ½ feet diameter, 5 feet wide, with engine 14 by 12 inch, Robb, automatic. This fan will produce 150,000 cubic feet of air a minute, w. g. 5 inches, quantity of air at present in circulation 46,793 cubic feet a minute, w. g. .7.

One 100 k. w. 250 volt Crocker-Wheeler direct-current generator, directly connected to a 16 by 16 inch Rob engine.

Two 100 h. p. Monarch self-contained return tubular boilers.

One 100 h. p. Lancashire boiler.

One 100 h. p. Return tubular boiler.

Underground Machinery.

Six double friction drum motor-driven hoist equipped with 11 h. p. motor.

One 7 stage turbine pump, capacity 250 gallons a minute, against a pressure of 125 lb. to the square inch, directly connected to a 55 h. p. motor, at lodgment 1,700 feet from the mouth of the slope.

Two Dean sinking pumps, (triplex) motor-driven, capacity 43 gallons a minute, geared to 5 h. p. motors. Maximum quantity of water that can be discharged in one hour; 15,000 gallons, about 9,000,000 gallons a month.

Timber used during the year.

Booms, props and sleepers, 483,806 lineal feet. Props 4½ inches, small end, booms 8 inches in diameter.

Rails in Mine.

12,421 feet of 28 lb. 30,391 feet of 18 lb.

I visited this colliery 15 times during the year.

SYDNEY, No. 5.

This mine is entered by a shaft 360 feet deep, 10 feet in diameter ; both men and coal are hoisted in this shaft.

The pumping shaft is 10 feet in diameter, equipped with a separate hoisting engine and a man cage for the men to ride in, in case of an accident to the main shaft. There is a connection between this mine and No. 1 colliery.

There are 80 working places in the mine. The coal is mined with hand-picks, and the men work with Maursaut safety lamps.

The north side of the mine is ventilated by the return from No. 1 colliery, one continuous current passing around the working faces, thence to the fan shaft. The south side is ventilated by a separate split from the main shaft. There are 75,000 cubic feet of air a minute in circulation. Board and stone stoppings and asbestos brattice cloth are used.

For fire protection, connection can be made with hydrant on water main. The mine officials and workmen take a course of training with the Draeger Breathing Apparatus. The smoke-house is 24 by 14 feet and 8 feet post.

The water for the plant is supplied from Pottle's Lake, North Sydney. There are 340 men employed, 40 on the surface, 300 in the mine. The output was 140,079 tons; of this amount 104,346 tons were mined in rooms, 11,593 mined in pillars, 24,140 tons mined in narrow work. Quantity of explosives used—38,713 tons compressed bulldog powder; about $3\frac{3}{4}$ tons of coal to each lb. of powder used.

Development.

Main levels, driven 393 feet.

Headways driven off south main level, 330 feet.

Deeps	"	"	"	490	"
-------	---	---	---	-----	---

Main level, north, driven, 262 feet.

Headways, driven off main north level, 792 feet.

Deeps	"	"	"	528	"
-------	---	---	---	-----	---

The old stable deeps have been cleaned and re-timbered, 700 feet.

In the old works, there is a large quantity of coal left in pillars which will be taken out next year.

Officials :

Robert Robertson, manager.

John Marshall, underground manager.

George Slavin, overman.

Andrew Baillie, overman.

Surface Machinery.

One haulage engine, 75 h. p. 240 volt, direct current, Canadian Westinghouse & Jencks; rope $\frac{7}{8}$ of an inch, empty car 850 lb., capacity 1500 lb. 30 cars attached to rope by grabs; the road is level, the load is 3,734 lb. Walker detaching hooks and safety catches in the pulley frame. The loaded cars are pushed by hand

from the cages over a platform scale on to a hand operated tippie, which delivers the coal to a pair of shaking screens, 21 feet long by 5½ feet wide. The cam-shaft operating these screens runs at 88 revolutions a minute. The upper screen is furnished with a set of blank plates for making run-of-mine and perforated plates with 2½ inch holes for making screen coal, and a similar screen underneath this with ¾ inch hole divides the coal into slack and nut. At right angles to the screens are two picking belts, each 47 feet long, with a 20 feet adjustable jib arranged to lower to the bottom of 15-ton hoppers. One of the picking belts, 5 feet wide, receives the screened coal, and the second belt, which is 4 feet wide, receives the nut coal. This allows these two classes of coal to be picked. The belts run 40 feet a minute, and the driving sprockets are operated by a worm-and-worm gear. At the end of these belts there is an adjustable chute which receives the coal from the picking belt, and delivers it into box-cars. All the machinery in the the screen house is driven by a 35 h. p. 240 volt type S. Westinghouse, direct current motor.

Underground Machinery.

One Elliott pump, 30 by 48 inches, at shaft bottom, operated by steam; maximum quantity of water that can be discharged in an hour, 18,000 gallons; quantity that can be pumped in 24 hours, 432,000 gallons.

Timber used during the year.

Booms, props and sleepers, 393,168 lineal feet, props 4½ inch, small end, booms 8 inches diameter.

Rails in Mine.

8,448 feet of 28 lb. 33,427 feet of 18 lb. and 1,100 feet of 12 lb.

I visited this colliery 16 times during the year.

SYDNEY COAL Co.

This mine is at Indian Cove near North Sydney. The mine is entered by a level 10 feet wide, driven from the crop 2,950 feet. The seam is 4 feet 6 inches thick, pitching 7 degrees; direction of true dip north 10 degrees east. The coal is soft and free from gas. The roof is hard shale, floor fire-clay. The mine is damp, with

natural drainage. Rooms are turned off at right angles and driven to the rise; method of working, bord-and-pillar; rooms, 18 feet wide; pillars from 4 to 8 feet thick. Thickness of cover is about 50 feet. The system of timbering is props-and-caps. The output during the year was 4,500 tons; the quantity of explosive used was 600 lb. of compressed powder, which produced $7\frac{1}{2}$ tons for each lb. of powder used. There are 20 men employed, 4 on the surface and 16 in the mine. The water for the plant is supplied from a small brook near by. The ordinary brattice cloth is used, and the stoppings are of wood. The airways are $4\frac{1}{2}$ by 10 feet, and the air-shaft 8 feet in diameter. About 6,000 cubic feet of air a minute is circulating in one continuous current. The ventilation is natural.

Surface Machinery.

One double horizontal engine, 20 h. p. tail-rope haulage is used. Size of rope, $\frac{5}{8}$ of an inch. Weight of empty car, 750 lb.; capacity of car, 1,750 lb.

One upright tubular boiler, 30 h. p.

Timber used during the year.

Props, 3,000 lineal feet; diameter 5 inches.

Rails in Mine.

1,200 feet of 20 lb., 1,200 feet of 18 lb., 5,520 feet of 12 lb.

I visited this colliery 9 times during the year.

MACKAY MINE.

Owned and operated by the MacKay Mining Co.

This mine is about two miles to the westward of North Sydney, and is entered by a slope 1,126 feet. The seam is 4 feet thick, soft coal, free from gas. The roof is hard clay and sandstone, and the floor is fire-clay. The mine is damp, pitching about 11 degrees. Direction of true dip north 51 degrees east. The first 500 feet of the slope were driven 12 feet wide. The remainder is

9 feet wide. The pitch of the slope is 10 degrees, 30 minutes. Plane haulage is used; size of rope, $\frac{7}{8}$ of an inch; weight of empty cars, 750 lb.; capacity of car, 1,400 lb. The mode of working is bord-and-pillar. Rooms, 20 feet wide. Pillars vary in thickness from 12 to 20 feet. The method of timbering is props-and-caps and props-and-booms. There are 20 working places in the mine. Open lights are used. There are two sections, north and south. There are 9,000 cubic feet of air circulating in one current; size of air-way, 5 by 6 feet.

The ordinary brattice-cloth and board stoppings are used. There were 50 men employed at this colliery during the year—28 miners and 10 unskilled laborers underground, and 12 on the surface. The output was 17,066 tons, an increase over the previous year of 3,758 tons. There were 6,666 lb. of bulldog powder used. About $2\frac{1}{2}$ tons to each lb. of powder. Water is supplied for the plant from Pottle's Lake, North Sydney. In case of fire, connections can be made with the hydrant on water main. A house was built over the bankhead, 130 by 15 feet, 8 feet post, pitch roof. An ell 100 by 15 feet by 8 feet post, was also built to the bank-house. A new bar-screen, 15 by 14 feet, $\frac{3}{4}$ inch square mesh, was erected.

Surface Machinery.

One 60 h. p. Leonard-Ball engine, 12 by 9 inches, connected to a 45 k. w. generator.

One fan-engine, 6 by 9 inches.

One Sheldon fan, 6 feet in diameter; width, $3\frac{1}{2}$ feet; capacity, 20,000 cubic feet a minute, connected direct.

One Gates tubular boiler, 12 h. p.

One upright boiler of 80 h. p.

All the buildings on the surface are lighted by electricity.

The mine is supplied with electrical power.

The fan house, 12 by $9\frac{1}{2}$ feet by 8 feet post is alongside the shaft.

Underground Machinery.

One Sullivan electric chain coal-cutting machine.

Two Fairbanks-Morse duplex pumps, 6 by 4 by 6 inches; 700 feet from the surface, operated by steam. Maximum quantity of water that can be discharged, 6,480 gallons an hour, or 4,500,000 gallons a month.

Timber used during the year.

Booms, 3,380 lineal feet; diameter, 8 inches.

Props, 61,012 " " " 5 "

Rails in mine.

1,200 feet of 28 lb., 600 feet of 21 lb., 10,201 feet of 12 lb.

I visited this colliery 15 times during the year.

COLONIAL MINE.

Owned and operated by the Colonial Coal Co.

This mine is about a half mile from the Little Bras d'Or bridge on the Bras d'Or Lake. The mouth of the slope is about 200 feet from the water, and for vessels drawing up to 19 feet, the shipping situation is unexcelled. The new extension of the I. R. C. is within a half mile of the mine. There were 40 men employed at this colliery during the year, 18 on the surface, and 32 in the mine. The output was 13,516 tons. The quantity of explosive used 4,200 lb. compressed powder—a little over 3 tons for each lb. of powder used. The method of working is bord-and-pillar—rooms 20 feet wide, pillars from 12 to 20 feet, according to cover. The system of timbering is props-and-caps. Where roof is bad, booms and props are used.

Development.

The north levels, turned off 220 feet from the face of slope, were driven 300 feet.

South levels turned off 220 feet from the face of slope, were driven 300 feet.

There are 18 working places in the mine. Open lights are used. 17,500 cubic feet of air a minute is in circulation.

This colliery was abandoned for more than thirty years. The first shipment by the Colonial Company was on May 8th, 1910.

Officials :—

Thomas Carr, manager.

Alex. K. McLeod, underground manager.

Wm. McGillivray, chief engineer.

Surface Machinery.

One Leonard-Ball automatic cut-off engine. This engine will develop 60 h. p. at a speed of 250 to 300 revolutions a minute.

A new Flory engine, 10 by 12, double cylinder, friction drum.

One hoisting engine, 50 h. p.

One steel plate fan, blast-wheel, 64 inches in diameter, connected direct to a 10 h. p. Kalamazoo vertical engine. This fan produces 20,000 cubic feet of air a minute with a w. g. of 1.8 inch.

The surface works are to be electrically lighted, and Sullivan coal cutting machine and pumps are to be run by electricity.

Mine Buildings.

Engine house 12 by 36 feet, 9 feet post.

Stable 20 by 30 feet, 12 feet post.

House over slopes, 100 by 10 feet, 7 feet post.

Magazine, 8 by 10 feet.

House over wharf 40 by 60 feet, post 6 feet 6 inches.

The pockets on the pier were raised 10 feet, giving a capacity of 800 tons.

Underground Machinery.

Two Cameron pumps—one 12 by 13 by 7 inches, capacity 200 gallons a minute, and one 12 by 13 by 6 inches, capacity 150 gallons a minute. Maximum quantity of water that can be discharged in a month 7,200,000 gallons.

Timber used during the year.

5,000 lineal feet of booms and props.

Rails in Mine.

9,900 feet of 28 lb. 2,240 feet of 12 lb.

Yours truly,

NEIL A. NICHOLSON,

Deputy Inspector of Mines.

*Report of Accidents in Coal Mines of Nova Scotia (Cape Breton, Northern District) Year ended
September 30th, 1910.*

No.	Date. of Accident	Mine.	Name.	Age.	Remarks.	Fatal.
1	Oct.	7 Dominion No. 1	Louis Bressen ...	....	Driver. Jammed between boxes. Not serious.	
2	"	16 Sydney No. 5	Joseph Haworth..	33	Miner. Fall of stone. Killed.	1
3	Nov.	12 "	1 John Nicholson...	40	Miner. " Back injured seriously.	
4	"	13 "	4 Nicholas Bushwa.	23	Loader. Runaway box. Fractured leg.	
5	"	21 "	3 James Wallace...	36	Shot-firer. Fall of stone. Bruised shoulder.	
6	"	24 Dominion No. 1	Ericson Joper ...	.....	Loader. Fall of coal. Back bruised.	
7	Dec.	8 Sydney No. 3	Daniel Laffin.....	30	Machine runner. Fall of stone. Leg broken.	
8	"	15 Dominion No. 1	Gravan. Possibon	.....	Loader. Fall of coal. Spine injured.	
9	"	16 "	1 James Maxwell...	....	Spragger. Jam'd betw'n boxes. Collar bone fr.	
	1910					
10	Jan.	10 Sydney No. 4	Wm. McAldine ...	36	Miner. Fall of stone. Killed.	1
11	"	29 Dominion No. 1	Chas. Rennie.....	66	Dep. Overman. Fall of stone. Concussion brain.	
12	Feb.	15 Sydney No. 1	John McDonald...	55	Shiftman. " Ankle broken.	
13	"	23 Dominion No. 1	John Symes	40	Miner. " Leg broken 3 places.	
14	Mar.	4 "	1 Leander Drover...	28	Laborer. " Foot smashed.	
15	"	15 "	15 Archie Graham .	37	Miner. Jam'd btwn box and face. Both legs bkn.	
16	"	16 "	1 Posoken Banests .	18	Driver. Jammed between boxes. Leg fractured.	
17	"	18 "	1 Giov. Paganai ..	41	Loader. Fall of coal. Leg broken.	
18	"	18 "	1 George Brown ...	59	Dep. Overm'n. Shot went off light. squib. Legs bkn	
19	"	20 "	1 John Corbett	22	Lab'r. Jam'd btwn box and pillar. Coll'r bone bkn.	
20	Apr.	4 "	1 Thos. Weliner...	38	Miner. Kicked by a horse. Jaw and nose frac.	
21	"	7 "	1 John Murray	32	Pipe-fitter. Fall of stone. Back and spine inj.	

22	"	9	"	1	Auton Pavaa	34	Miner.	Fall of coal.	Leg. broken.	1
23	"	13	"	"	J. S. McDonald ..	43	Miner.	"	Killed.	
24	May	17	"	"	James Harvey	35	Shot-firer.	Fall of coal.	Leg injured.	
25	"	20	"	"	Law'nce Sampson	40	Miner.	Hit by falling prop.	Head injured.	
26	June	7	"	"	Giov. Franzie	31	Loader.	Fall of stone.	Back and spine injured.	
27	"	8	"	"	James Kennedy ...	30	Miner.	"	Leg fractured.	
28	"	9	"	"	A. Kermerchek ...	40	Miner.	"	Back and spine injured.	
29	"	10	"	"	John Kavanagh ..	17	Driver.	Jam'd btwn box and shafts.	Foot crshd.	
30	July	5	"	"	M. McDonald	22	Cage runner.	Fall of stone.	Killed.	1
31	"	14	"	"	Lingi Brison	21	Driver.	Runaway boxes.	Spine injured.	
32	"	18	"	"	Thos. Cathcart ...	21	Driver.	Fall of stone.	Ribs injured.	
33	"	18	"	"	Rory H. McNeil..	35	Helper.	Caught in wheel of mach.	Fingers crshd.	
34	Aug.	2	"	"	Alex. Hurley	16	Driver.	Caught btwn box and door.	Wound leg.	
35	"	11	"	"	Wm. Carroll	...	Laborer.	Jam'd btwn coal hoppers, surface.	Killed.	1
36	"	30	"	"	Rory S. McNeil ..	35	Miner.	Fall of coal.	Leg. injured.	
37	Sept.	1	"	"	James Groome	21	Driver.	Fall of stone and coal.	Leg injured.	
38	"	29	"	"	Angus Johnson	...	Laborer.	Jam'd btwn coal hoppers, surface.	Killed	1

PORT HAWKESBURY, N. S.

November, 14th, 1910.

HIRAM DONKIN, ESQ.,

Deputy Commissioner of Public Works and Mines,

Halifax, N. S.

DEAR SIR:—I beg leave to submit to you the annual report on the coal mines in the Inverness district for the year ended September 30th, 1910.

INVERNESS MINES.

Owned and operated by the Inverness Railway and Coal Co.

The following is a report of the development work done during the year:—

No. 5, east level:—This level was not driven any during the year, having been stopped April 18th, 1910.

No. 6, east level:—This level is now in 6,775 feet from the main slope—distance driven during the year 550 feet; at this point a down-throw fault was met. The pillars have been extracted in No. 4, 5 and 6 balances, and the pillars are being drawn in No. 8, 9 and 10 balances. No. 11 balance has been driven on this lift, and bords 14 feet wide driven off it, east and west.

No. 6, west level:—This level was not driven any during the year: the pillars have been extracted in No. 5 chute.

No. 7, east level:—This level is now in 3,050 feet from the angle slope—distance driven during the year 1880 feet. Three balances No. 2, 3 and 4 have been driven, and No. 5 balance is now being driven. The bords off these balances are all 14 feet wide, with an average pillar of 34 feet. The five top bords east and west, are to their limit, and the pillars will be drawn before the lower bords are started. Five bords, No. 5 to 9, have been driven west off No. 1 chute to within 250 feet of the angle-slope: these bords are 14 feet wide with an average pillar of 34 feet. The

pillars east of this chute, with the exception of No. 1, have been drawn to within 100 feet of the chute. The top pillars in No. 2 balance are also being drawn.

No. 7, west level:—This level is now in 2,485 feet from the angle-slope, and is through on the main slope; distance driven during the year 1,445 feet. The longwall system was discontinued in this section 300 feet from No. 1 chute; and three chutes No. 2, 3 and 4 were driven, bord-and-pillar, width of bords 14 feet, with an average pillar of 34 feet. The pillars are being drawn on No. 2 and No. 3 chutes.

No. 8, east level:—This level has been started off the angle-slope, and is now in 610 feet. No. 1 chute has been driven up, and nine bords are driving east. The width of the bords in this chute is 12 feet, with an average pillar of 40 feet.

No. 8, west level:—This level has been started off the angle-slope, and is now in 380 feet. A tunnel 10 by 6 feet, is being driven off the slope for a landing for this section. The total length of angle-slope is 4,585 feet—having been driven during the year 485 feet. Total length of slope from pit mouth to face of sinking is 4,900 feet.

The quantity of air in circulation is 110,000 cubic feet a minute: the size of the air-ways being 7 by 10 feet.

The ventilation is produced by a Walker fan 7 by 18 feet: the length of the fan-drift is 36 feet; area 14 by 10 feet, and the size of the fan-shaft is 10 by 10 feet. The fan is connected to a 16 by 30 inch single engine, and is rope-driven. It is geared 9 revolutions of the engine, to 12 of the fan. The w. g. is 2.8. The fan-house is of brick, 18 by 47 feet, situated 36 feet from the fan-shaft. The air is divided once. Brick stoppings and wooden stoppings are used. There are four sections in the mine. The number of men in each section being as follows:—

Underground;

No. 6 east level.....	170 men
No. 7 east level.....	123 “
No. 7 west level.....	103 “
No. 8 level.....	73 “
Total.....	469 “

There are 22 horses underground.

Number of men on surface 100.

The thickness of the seam is seven feet, pitching from 15 to 43 degrees: true dip N. 7° E. The props used are five inches at small end. The system of timbering is booms-and-props and props-and-caps. The method of working is bord-and-pillar. The bords in No. 6 and 7 sections are driven 14 feet wide, with an average pillar of 34 feet; in No. 8 section, 12 feet wide, with an pillar of 40 feet.

The output for the year was 277,257 tons. There were 92,176 lb. of Acadia No. 3 loose powder, and 782 lb. of Samson pellet powder used, making 93,958 lb. of powder; this produced 2.98 tons of coal for each pound of powder. Acadia No. 3 blasting powder is now used exclusively.

The timber is supplied from this county; the water supply is from Cape Mabou, by a gravity system, pressure 90 to 100 lb. to the square inch. There are hydrants about the works, and hose and reel at hand—500 feet of new hose being added to the equipment during the year. The bankhead is of wood; it and the surface buildings are connected with water pipe-lines having hose connection at intervals. The slope is 4,900 feet long, 10 feet wide by 7 feet high, pitching from 15 to 43 degrees. The roof is sandstone and shale, and the floor is fire-clay. Direct haulage is used with 1 1/8 inch steel rope, hauling 10 cars in a rake; capacity of car 2240 lb. The empty car weighs 1020 lb. Where the load on the balances is only one car, 5/8 inch rope is used. The riding rakes are equipped with safety chains, and there are derailing devices between the slope-portal and the knuckle. There are 400 pit-boxes in use.

The mine is free from dust, and is damp; no spraying is done and 609 Marsaut safety lamps are in use. The mine is non-gaseous. No. 2 twilled brattice cloth is used. The travelling slope is 9 by 7 feet, and is in good condition. The capacity of the surface reservoir is 430,000 gallons, and 72,000 gallons an hour, can be pumped from the mine.

Surface Machinery:

One Dixon haulage engine, 16 by 30 inches, geared 3 to 1; diameter of drums 8 feet, containing each 5,500 feet of 1 1/8 inch rope. These engines are 500 h. p.

One man engine, 12 by 16 inch, diameter of drum 4 feet, containing 4000 feet of one inch rope.

One fan engine, 16 by 30 inch, geared 9 to 12.

Three 15 h. p. screen-and-tipple engines.

One 45 h. p. creeper engine.

One 20 h. p. engine.

One 35 h. p. engine, 8 by 12 inch, 3 feet, tandem drums not in use.

One engine, 75 h. p. Robb-Armstrong.

* One dynamo, 6 pole, 125 volts, 4 amperes, 280 revolutions a minute.

One Ledgerwood sinking engine, not in use.

One compressor, cylinders $19\frac{1}{4}$ by $32\frac{1}{4}$ inch, steam cylinder 20 by 36 by 48 inch, capacity 3000 cubic feet of air a minute.

Four batteries of B. & W. boilers, 212 h. p. each.

Two Heine water-tube boilers, 250 h. p. each, total h. p. 1348.

Underground Machinery.

One Cameron pump, 18 by 30 by 12 by 20 inch, capacity 500 gallons a minute.

One Cameron pump, 18 by 9 by 20 inch, capacity 250 gallons a minute.

One Jeansville duplex pump, 30 by 9 by 24 inch, capacity 700 gallons a minute.

One Cameron pump, 20 by 9 by 20 inch, 250 gallons a minute.

One Cameron pump, 18 by 9 by 20 inch, capacity 250 gallons a minute.

One Cameron pump, 12 by 6 by 18 inch, capacity 150 gallons a minute.

One Northey pump, 10 by 4½ by 18 inch, capacity 80 gallons a minute.

One Cameron pump, 10 by 5 by 13 inch, capacity 100 gallons a minute.

The pumps at No. 3 and four levels are operated by steam, the others by compressed air.

One Ledgerwood sinking engine, 7 by 9 inch.

There are four dams in the mine.

Official Staff—

W. D. Barclay, General Manager.

J. McGillivray, Superintendent.

H. A. McLeod, Manager.

J. Cassidy, Underground Manager.

N. P. McLellan, “ “

S. J. Doucett, Overman.

George Blackwood, Overman.

James P. McNeil, “

Timber used during the year:

Booms....	4,971	14 feet long,	6 inch diameter,	lineal feet,	69,594
“	22,128	12 “ “	6 “ “	“ “	265,536
“	10,750	10 “ “	6 “ “	“ “	107,500
Props....	90,846	7 “ “	5 “ “	“ “	635,922
“	21,855	5 “ “	5 “ “	“ “	109,275
Sleepers..	17,814			“ “	101,704
					1,289,531

Rails in mine :—

7,270 feet, 56 lb. 13,170 feet, 30 lb. 61,310 feet, 18 lb.

MABOU MINE.

Owned by the Mabou and Gulf Coal Company.

This mine has not been worked since January 17th, 1909, on which date it was flooded.

The surface buildings are one bank-house 227 by 27¼ feet with ell 68 by 22½ feet : one boarding-house 2½ storeys 109 by 26½ feet : one office 20½ by 12½ feet : one forge and work-shop 52½ by 25½ feet : one wash-house 25 by 20 feet : one boiler-house 27 by 37 feet with shed 16 by 42 feet : one boiler-house 21 by 38 feet with shed 16 by 42 feet : one boiler-house 25 by 50 feet with shed 16 by 42 feet : one engine-house 50 by 27 feet : one engine-house 27½ by 32½ feet : 12 double houses, one and a half storey, 40 by 24 feet with kitchens 13 by 9 by 8 feet : one dwelling house 20½ by 15½ feet with ell 15½ by 12½ feet : one barn 24½ by 20½ feet.

Surface Machinery.

Two Matheson boilers, 80 h. p., return tubular, 5 by 14 feet, externally fired.

Four Penberthey injectors : two Cooper boilers, 80 h. p., return tubular, 5 by 16 feet : three Mumford tubular-boilers 100 h. p. each.

One hoisting engine, 20 by 32 inch with two drums, 5 feet in diameter.

One air compressor, steam end 20 by 30 inch, air end, 20 by 30 inches.

One air receiver : one mine-fan : one fan-engine, 7 by 10½ inch, diameter of fan, 77¼ inch.

One screening plant : one screen engine : two Ingersoll mining machines :

One Harrison mining machine : three Sullivan mining machines : two Radial mining machines : one electric dynamo,

marble switch board: two No. 9 Cameron pumps: two No. 6 Cameron pumps: one fly-wheel pump, one duplex pump.

PORT HOOD MINE.

Owned and operated by The Port Hood Richmond Railway Coal Co.

The thickness of the seam is six feet; average pitch 22 degrees. The roof is fire-clay, 4 to 10 feet thick; the floor is sandstone, true dip n. 83° w. The slope is 3,070 feet long, 10 feet wide, size of haulage rope, $1\frac{1}{8}$ inch: direct haulage, eight cars being hauled at a time. Each car has a capacity of 2,000 lb.—empty car weighs 940 pounds. On the balances $\frac{5}{8}$ inch rope is used. The bank-head is of wood. There are safety chains on the riding rakes. 500 feet of the slope have been relaid with 40 lb. rails—the rest of the slope is laid with 28 lb. rails. There are enough 40 lb. rails on hand to lay the slope from mouth to bottom. There have been fifty pit-boxes added during the year.

The output for the year was 86,847 tons; 16,891 lb. of monobel powder was used, 5.14 tons being produced for each pound of powder. The shots are fired by electricity; monobel powder is now used exclusively.

There are 50,000 cubic feet of air a minute in circulation. The air-ways are 6 by 8 feet, the air is produced by one Dixon fan 6 by 14 feet. The fan-drift is 150 feet long with an air-way of 48 feet. The fan-shaft has an area of 64 feet. The average w. g. is 2 inches. The fan is directly connected to the engine. The fan-house is of steel plate, and engine-house is of wood, 10 by 20 feet. The fan is 150 feet from the north side of the air-shaft. A wooden box, on the surface, 6 by 8 feet, leading from north shaft to the fan forms part of the return, and does away with over-cast in the mine. The air splits at the bottom of the slope, north and south. The stoppings are built of booms, and ends of timbers, plastered with cement and lime. There are four sections in the mine, and the number of men in each section is as follows:—

No. 4, south, 15.

No. 4, north, 80.

No. 5, south, 15.

No. 5, north, 25.

135.

The timbering is done with booms and props, and props and caps. The method of working is bord-and-pillar; the bords are 14 feet and the average width of the pillars is 30 feet. The mine is free from dust but slightly gaseous, no spraying system is used. 150 Ackroyd & Best safety lamps are in service. Austen's brattice cloth is used for temporary work. The travelling slope 8 by 6 feet is in fair condition.

The timber used in the mine is got in the county. The water supply is from a reservoir which holds 80,000 gallons. The water is taken from this reservoir except in extremely dry seasons, when it is supplied from a bore-hole about 4,000 feet from the works.

The following fire-protection apparatus is on hand:—

One underwriters' fire-pump, 12 by 7 by 14 inch, duplex, capacity 500 gallons a minute. One hose reel with 1,000 feet of 2½ inch hose.

The number of boys and men employed underground is 180.
 “ “ “ “ “ “ “ on surface “ 70.

The following is the development during the last year:—

No. 3 north level was not advanced during the year; it has been abandoned owing to a squeeze which took place in that section in May, 1909. No. 3, south level, has not been advanced during the year—No. 1 balance has been worked out. No. 4 north level, has been driven 85 feet during the year, and No. 4, 5 and 6 balances have been worked out in this section. The balances at present working are No. 7 and No. 8. The total length of this level is 4,371 feet. The Deputy Inspector ordered this level to be stopped, owing to a fault, which appears on the surface to the north of it. No. 4 south level was not driven during the year, having been stopped when a down-throw fault was met last year, No. 1 balance has been driven up 400 feet, and is now working, bord-and-pillar. No. 5 north level has been driven 1,500 feet and No. 1 and No. 2 balances are being driven up—bords are now working on No. 1 balance. No. 5 south level has been driven 390 feet, at which point a down-throw fault was met. No. 1 balance has been driven, and has bords working on it.

The coal is taken to the shipping pier by tail-rope. The capacity of the pier is 2,000 tons. The screened coal is shipped

on a 36 inch rubber belt operated by a 20 h. p. engine. The slack coal is shipped on a 24 inch rubber belt operated by a 20 h. p. engine.

The Officials are:—

R. J. Law, general manager.

John Henderson, manager and mechanical superintendent.

Edward Doyle, underground manager.

Rod Gillis, overman.

Baptiste Arents, overman.

James Campbell, night examiner.

Surface Machinery.

One hoisting engine 20 by 40 inch, drums 7 feet in diameter.

One engine, 50 h. p.

One engine, 25 h. p.

One Flory engine, 100 h. p.

One engine, 16 by 24 inch.

One fan 14 feet in diameter.

One compressor, 800 cubic feet of air a minute.

One compressor, air cylinders 22 and 36 inch; steam cylinders 32 and 36 by 36 inch, capacity 3,000 cubic feet a minute.

One compressor, capacity 500 cubic feet of air a minute.

Two batteries, Robb return tubular boilers, total h. p. 924.

One electric light plant, engine and dynamo, 60 k.w., 80 h.p.

1,000 standard lights.

One pump, 12 by 7 by 14 inch, capacity 500 gallons a minute.

One pump, 10 by 5 by 12 inch.

Machinery Underground.

One Cameron pump, 16 by 7 by 18 inch. No. 1 lift.

One Northey pump, 12 by 5½ by 12 inch. No. 2 lift.

One Northey pump, 12 by 5½ by 12 inch. No. 3 lift.

One Cameron pump, 5 by 3½ by 7 inch. No. 4 lift.

One Cameron pump, 12 by 4 by 18 inch, at No. 5 lift.

Total capacity 7,000 gallons an hour.

These pumps operated by air.

Quantity of mine timber used during the year :—

Booms.....6 by 7 inch, 20,100 lineal feet.

“ 6 “ 8 “ 10,908 “ “

“ 6 “ 7 “ 25,800 “ “

“ 7 “ 9 “ 10,800 “ “

Sleepers..... 4 “ 5 “ 72,008 “ “

Props 5 inches small end, 78,562 lineal feet.

Total 218,171 feet.

Richmond Shaft.

This mine has not worked since last report. The machinery on hand consists of :

One 64 by 30 inch, Sheldon fan.

One 4 h. p. fan engine.

One No. 10 Cameron plunger pump.

One Robb Munford boiler, 120 h. p.

Two Matheson boilers, 25 h. p. each.

One hoisting engine, 50 h. p.

One Flory engine, 25 h. p.

Twelve pound steel rails are used in the mine.

The surface buildings are one power-house, 25 by 40 feet, one black-smith and carpenter shop, 10 by 30 feet, one office and supply house 21 by 14 feet, five dwelling houses, one boarding house 30 by 70 feet, one dwelling and office for the manager.

Richmond Slope.

This mine has not worked since last report. The machinery consists of two boilers, 25 h. p. each, one hoisting engine, 30 h. p.

There are 498 feet of track laid with 12 lb. rails. The surface buildings are :—One power house, 18 by 39 feet, one blacksmith's shop, 10 by 12 feet, and one fan-house, 5 by 10 feet.

The Barytes Mine.

162 tons of Barytes were mined from this property during the year. The timber in the workings has been renewed, and is in good shape for resuming work in the spring of 1911.

The machinery consists of :—

One boiler 65 h. p.

One compressor.

Two air receivers.

One hoist with 300 feet, of $\frac{1}{2}$ inch rope.

Three Rand air drills.

Nine 1 ton ore cars.

One back-balance gear, with 1200 feet, $\frac{3}{4}$ inch rope : 2000 feet of $3\frac{1}{2}$ inch, air pipe.

The buildings are one power house, 50 by 30 feet, one store-house and one blacksmith shop.

Yours truly,

WALTER F. DAVIS,

Deputy Inspector of Mines.

Report of Accidents in Coal Mines of Nova Scotia (Inverness District) Year ended September 30th, 1910.

No.	Date.	Mine.	Name.	Age.	Remarks.	Fatal.
1	Oct. 5.	Inverness.	Alex. McLean.....	32	Miner. Fall of coal. Left leg bruised.	
2	" 9.	"	Thos. Flemming.	16	Chute L'd'r. Fell into mov'g box. Right arm bkn.	
3	" 13.	Port Hood	Neil McDonald ...	47	Miner. Fall roof. Jawbone broken, bruised head.	
4	" 22.	Inverness	Dan. A. McIntyre	16	Shiftman. Struck by falling coal. Left arm bkn.	
5	" 26.	"	Joe Ingraham.....	26	Bankman. Struck, empty box. Collar bone bkn.	
6	" 29.	"	Robt. Fraser.....	22	Miner. Fall, roof coal. Right leg broken two places badly brsd across back, cut side, bled to death.	1
7	Nov. 8.	"	Joseph McKenzie	20	Chain Run. Caught btwn box and prop. Back and hip hurt.	
8	" 11.	"	Isaac Conway	55	Timberman. Fall of stone. Finger broken.	
9	" 13.	"	Fernand Toussant	38	Miner. " Back bruised.	
10	Jan. 10.	Port Hood.....	James Porter	28	Shiftman. Riding cars, cars derailed, jammed his feet, bruised badly about the heels.	
11	" 12.	Inverness	Archill Flurcey ...	27	Miner. Fall of stone. Ankles bruised.	
12	Feb. 1.	"	Alfred Veith.....	26	Laborer. Fall of stone. Left leg broken.	
13	" 2.	"	J. W. McQuarrie..	28	Loader. Struck by falling timber. Back injured and fingers hurt.	
14	" 3.	"	Ben Chevalier	28	Loader. Caught btwn box and roof. Cut off two fingers of right hand.	
15	" 8.	Port Hood.....	Angus McDonald.	23	Loader. Fingers jammed between box and roof. Fingers bruised.	
16	" 25.	"	Dun'n McLennan	24	Surface Lab. Caught while landing rake on bankhead. Hips and shoulders injured.	

17	Feb.	25.	Inverness.....	John D. Burke....	20	Cage run., Foot jammed by cage, ankle sprained.
18	Mar.	2.	Port Hood....	Alex. Smith.....	20	Surface Lab. Caught between box and chute. Bruised shoulders.
19	April	21.	Inverness.....	Michael Angelo....	28	Miner. Replac. cars on track. Two fingers left hand bruised.
20	May	12.	"	Allan McDonald.	17	Chain run., caught btwn box and roof, back brsd.
21	June	13.	Port Hood.....	Arthur Gadson....	14	Pump-boy, engine machine shop, bruised body.
22	"	27.	"	Chas. Arents....	50	Timberman. Fall of roof coal. Cut on head.
23	"	27.	"	John A. Gillis.....	20	" " Sprained ankle. Laborer.
24	July	7.	Inverness.....	John A. McInnis..	19	Driver, caught btwn shafts, full box. Legs brsd.
25	Aug.	6.	"	Thos. Arnott.....	35	Miner, inj. with riding rake, three broken ribs.
26	"	20.	"	Alex. McKinnon..	23	Miner, fall of stone, fingers cut and bruised.
27	Sept.	21.	"	Reynold Bettinger	16	Laborer. Injured in chute. Two ribs broken.
28	"	28.	"	John Peters.....	15	Brake-holder. Caught between drum and rope. Concussion of brain.

WESTVILLE, PICTOU COUNTY, N. S.

MR. HIRAM DONKIN,

Deputy Commissioner Public Works and Mines.

Halifax, N. S.

Dear Sir,—

I beg leave to submit to you my yearly report on the coal mines of Pictou County, for year ended September 30th.

I regret to have to report 24 accidents during the last year, four of which were fatal; three of the fatal accidents occurred in the Albion Mines and one in the Acadia Mines.

On January 27th, 1910, Elmore Leonard, a miner, lost his life by a fall of coal in the Cage-Pit seam in No. 6 bord, No. 1 balance, on south side of Iron Door level. The bords are driven leaving five feet of top coal, and it was while taking down this coal that he was killed. The top coal is timbered with sets, booms and props, with centers $3\frac{1}{2}$ feet apart. When pillars are being drawn, this top coal is pierced, when the pillar-cut is started. The pillar-cut is then all taken out 12 feet in height, and 30 to 40 feet wide, and about the same in length. Then the timber is drawn from under the top coal. In the act of doing this, Leonard was killed.

The second fatal accident occurred on February 4th, 1910, in the Albion Mine, Third Seam, No. 8 bord, No. $5\frac{1}{2}$ balance, north side. Wm. Baxter, a loader, age 27, was killed by a fall of stone. The stone fell about 10 feet from the face of the bord, from between two sets of timber. It was what is called a pot-hole, being about 3 feet in diameter and 10 inches in the center, and thinned to an edge all round. He was about to load a box when he was struck, his back was broken. He lived from 7 p. m. until 9a. m. next day. The third fatal accident occurred in the Acadia Mine, on May 12th, 1910, Edward Bigney, trapper, age 15, was attending a trap-door in No. 12 level, south, after letting the driver through the door he followed the trip in 360 feet, where he sat to await the drivers coming back.

The driver did not come back for three-quarters of an hour, and it is supposed that during the long wait, the trapper had fallen asleep on the track when the full trip came; it ran over him killing him instantly. His body was found under the second box.

The fourth fatal accident occurred on June 10th, 1910, in the Albion Mines in the steam-slope, McGregor seam, when Wm. B. Downs lost his life. On the day of the accident, he along with two other machinists, one the mechanical foreman, went into the slope to make some repairs, and after the repairs were made the steam was turned on in order to inspect the pipe-line. By agreement among themselves, in order to get done quickly with the inspection, one was to go to the lift above and the other to the lift below, and the third was to take the trip to go to get the one that went up, and then come down and get the other. On going up, he failed to find the first man, but after some searching the body was found on the south side of the pipe-head, under the steam-line, about 60 feet from where he started. His lamp was found about 60 feet above where his body was found. He was scalded or burned about the body and legs and one of his hands, and there were bruises on his forehead. The doctor attributed his death to shock. The other accidents were of a trivial nature, and occurred in the following places:—

Albion Mines	7
Vale Colliery.....	4
Acadia Mine.....	3
Allan Shafts.....	5
Drummond Colliery	1

ALLAN SHAFT, NO. 2.

No constructing of any importance was done during the last year. A concrete culvert 250 feet long, inside diameter three feet, has been built in the ravine south-west of No. 1 shaft to carry the water under the railway. This will allow the ravine to be filled in and make more yard room. The blacksmith's shop, machine shop and carpenter shop have been moved back to make room for a large brick and stone building. This building will be 70 by 60 feet, and will house a new electric plant soon to be installed. The plant will supply power for surface and underground workings at this mine and at the Albion. No new machinery was placed during the year. The general repair work was kept up and the plant is in good condition.

The fan-drift is 45 feet long with an area of 60 feet. The fan-shaft is 10 feet, 6 inches, by 7 feet, 3 inches. The fan-house is of wood covered with corrugated iron, and is 45 feet from the air-shaft. The main shaft is divided into three compartments, each 10 feet, 6 inches, by 7 feet, 3 inches.

There are 180 Wolff safety lamps in use, and 80 more on hand.

The explosive is monobel, 8,209 lb. of which were used, and 13,804 detonators.

The average reading of the barometer on the 6th day of July was 29.62 inches; on the 22nd of July was 29.76 inches; on August 17th it was 29.88 inches; on the same dates the thermometer registered 62 degrees, 61 degrees, and 59 degrees respectively.

There are no dams or pumps in this colliery: the water is all hauled by means of tanks; the average quantity taken out is 7,000 gallons daily. There is no spraying system, the haulage ways are all damp, the working faces are somewhat dusty.

The mine gives off gas freely in some places. The stoppings between the downcast and upcast are made of five feet blocks, laid lengthwise and buried in mortar, and plastered on the ends; in other parts of the mine brattice boards and tarred canvas are used.

There are two air-crossings made of wood and cement. The sides are of three inch plank filled with cement for a facing. The floors are also of three inch plank, covered with cement. These crossings have each an area of 48 feet.

There are three air-splits: one to the Ford-Pit seam, south-east one to the north-west, and one to the Cage Pit seam, north-west. Each of these airways is fitted with a regulator. The average quantity of air is 60,000 cubic feet a minute.

The direction of the true dip is N. 63° 30' W., on the south-west side it changes toward the south-east. The dip runs from 27 to 50 degrees. The mine is worked bord-and-pillar; bords are 14 feet wide and pillars from 45 to 50 feet wide. Timbering is in sets, booms and props and the distance between sets is three to four feet. Booms run from seven to eight inches in diameter; props, five to six inches at the small end.

No work was done in No. 1 shaft during the year, and no work has been done in the Cage Pit seam in any of the shafts; the work done in the mine was confined to the Ford Pit seam. In No. 2 shaft operations were somewhat hampered, owing to a scarcity of

miners, in the early part of the year. Owing to the slackness in the coal trade, much time was lost during the months of June and July. The outlook for the coming year is more bright.

Two stone drifts have been started in No. 2 shaft. One in the Cage Pit seam, running north to prove the Third seam: the other is being driven toward No. 1 shaft from the Ford-Pit seam, for a haulage-way from No. 2 to No. 1, so that the coal from No. 2 shaft can be taken to No. 1 shaft, and landed on the new bank-head. It is also reported that a large electric pump is to be placed in or near this tunnel to handle the Ford-Pit water which is to be taken from No. 2 shaft. All the work this year has been done principally in No. 51 chute, on the south-east side of the shaft. In this balance ten places are being worked on the south-west side, and three places on the north-west side. All the places on the south-east side are driven up against the fault. Places are being driven up in the bottom part of the seam, until they strike the foot-wall or bottom. Levels are also driven down until they strike the hanging-wall or roof. Fifteen-foot stumps are left in.

This method is repeated until they reach out to where it is intended to draw the stumps and pillars—a like system has been adopted in the three places on the north-west side of the balance.

The slant which was being driven from the dip of this level toward the basin, was driven 200 feet this year, and an air-way driven up to the main level for a return. On the north-west side, work was confined to No. 33 chute. Five pillars are working on the south-west side of the balance and two on the north-east side. In this section places are driven up until the bottom is struck. They then drive across the hill in the bottom of the seam, timbering up the upper part until the stumps are drawn out; then the timbers are drawn out by means of a timber-drawer, or shot-out, when the top falls in. This top coal is about 30 feet thick. This method is very successful: some pillars giving 650 to 700 tons a month.

The two pillars on the north-east side of the chute are worked in a similar manner. A new balance has been driven up on this side, and a uniform grade of about thirty degrees made over the fault to the transfer-balance. This transfer-balance was driven 180 feet the first of the year: it is ready to start at any time with nine rooms in it. A bore-hole was put down north-west of the fault that runs along the workings in the north-west side of No. 2 balance—coal 35 feet thick was reached at 400 feet. The pitch

here is about 27 degrees. This is the second hole that has been put down to reach the coal. The other was about 600 feet west from this, and another is being put down 700 feet north of the last one : it is to be hoped that this hole will also find the coal.

The mine produced last year 51,568 tons. The average thickness of the Ford seam is 37 feet, and of the Cage Pit seam 12 feet of workable coal.

There are in the mine :—

50 miners.
29 loaders.
37 shift-men.
18 boys.

On the surface :—

62 skilled workmen.
65 labourers.
4 boys.

I visited this colliery 33 times during last year.

The Officials are :—

Harry E. Coll, superintendent.

Simon Lott, manager.

Neil McLean, underground manager.

Rod Campbell, overman.

George Pembleton, back-overman.

Everett Park, mechanical foreman.

Surface Plant.

Two hoisting engines 20 by 30 inch, each, drums 5 feet by 7 feet 6 inches.

One vertical engine 18 by 10 inch.

One screen engine.

One bank-head engine 20 by 20 inch.

One fan-engine 13 by 24 inch.

Three Sterling boilers—total h. p. 716.

One Guibal fan 26 by 8 feet, 80 revolutions a minute, water guage $3\frac{1}{2}$ inches.

One 12 by 6 by 13 inches, duplex fire pump, 350 feet $2\frac{1}{2}$ inch hose.

One Sergeant compressor 18 by $18\frac{1}{4}$ inch, capacity 1,600 cubic feet a minute.

Timber used last year:—

Booms and props, 54,427 feet; diameter of booms, 7 to 8 inches: props, 5 to 6 inches at small end.

Sleepers, 2,375 feet, $4\frac{1}{2}$ by 3 inches.

Rails in use in the mine:—

6,750 feet of 18 lb., 90,000 feet of 12 lb.

ALBION MINES.

Owned and operated by the Acadia Coal Company, Limited.

As there are likely to be some changes made on the surface at this colliery during the coming year, no additions have been made during the last year.

The general repair work has been kept up and the plant is in good condition.

This mine is fairly dry at the working faces, and in the pillars of the Cage-Pit seam and the Third seam; otherwise it is fairly damp. All dust on the main haulage roads is loaded out. The air-pipes along the main levels are fitted with connections and valves so that they can be converted into a water system in about five minutes. The mine gives off considerable gas. There are

250 Wolff safety-lamps (patent lighters) in use, and 60 in reserve. The explosive is monobel, of which 18,961 lb. with 36,198 detonators were used. There were used also in the McGregor seam, cleaning it up, 225 lb. of monobel, and 436 detonators.

The travelling slope is in good condition. The width of the main slope is 11 feet and is $6\frac{1}{2}$ feet high. The direction of the true dip is N. $24^{\circ} 45'$ E., the average pitch is 23 degrees.

A new overcast, 9 by 6 feet, was put in during the year to ventilate the Ford seam. It is on the Cage-pit level, is built of wood and lined with sheathing. The stoppings between the downcast and upcast are of brick and mortar; in other places they are of blocks laid lengthwise in mortar and plastered on the ends. For temporary ventilation, tarred canvass and brattice boards are used.

The fan-drift at the Third seam is 26 feet long, 17 feet wide and 13 feet high. The fan-house is of brick with wooden roof; its size is 41 feet, 6 inches, by 19 feet, 6 inches. The fan-shaft is 8 by $12\frac{3}{4}$ feet. The fan-drift at the McGregor is 46 feet long, $16\frac{3}{4}$ feet wide, and 12 feet high. The fan-shaft is 9 by $9\frac{3}{4}$ feet. The fan-house, 41 by 26 feet, is of brick, with wooden roof.

The average barometer reading taken on the 21st of July was 29.83 inches, and on the 12th day of September, 29.68 inches. The temperatures on the same dates in the mine were 68 degrees and 63 degrees, respectively.

The system of working is bord-and-pillar. Bords are driven 10 to 12 feet wide and 8 feet high. Pillars are 50 by 50 feet. The average height of the Cage-Pit seam is 14 feet; 12 feet is workable.

In the Third seam the coal is 11 feet thick, but from 8 to 9 feet only is workable. Work in both seams is principally confined to pillar drawing. The only development work done during the year was in the Ford-Pit seam, which was tapped on the north side by means of a tunnel driven from the Cage-Pit level. The levels were driven in the Ford-Pit seam, in a north-west direction, about 600 feet. A second tunnel was completed and connected with the air-bord for a return air-way, and it appears now that a large body of the Ford-Pit seam will be got from this section. In the Cage-Pit seam, the levels in No. 7 lift were driven about 400 feet south-east and about 500 feet north-west. Work was suspended in these levels in the month of February. In the north.

level, in No. 5 lift of the Cage-Pit seam, the pillars have all been drawn as far as No. 1 $\frac{1}{2}$ balance. This is as far as they are to be drawn in the meantime. The pillar inside of the balance and the pillar between the balance and the back-head are being drawn from the top by means of a chute: they are now nearly finished. It was in this section that the fire occurred last March.

In the Iron-door level, ten pillars are being drawn. On the north side of No. 3 balance, one bord is being driven south to connect to another balance which is being put through the center of the next block of pillars, or half-way between No. 3 and No. 2 for a return air-way. A back-head is following this balance which makes 13 places in this section of the Iron-door level. On the south side of the Cage-Pit seam one balance is being worked with six pillars, which will soon be finished. An air-way and back-head are being driven up on the north side of the balance, which will soon be completed. When it is finished it will form a permanent return air-way from the lift below. This is all the work being done in this seam.

In the south side of the Third seam one balance is working. On this side of No. 1 $\frac{1}{2}$ balance, six pillars are being worked, also the level pillar and the mine-bord pillar. It is very costly to draw out pillars from this side, as the coal crushes badly and the bottom heaves. This is the section in which it was decided to leave in one-third of the pillars, as it is directly under the fire section in the Cage-Pit seam.

I am pleased to say that this idea has been, so far, successful, as no indications of fire have yet been seen in it.

In the north side of Third seam, No. 4 balance is being operated with ten bords. All the bords have been driven, and the pillars are being drawn back. No. 3 balance is being cleaned and repaired. When it is ready it will have nine rooms on it. The general repairs to air-ways and road-ways have been well done.

The McGregor slope and back-head are being repaired and made ready to resume work. Three lifts of pillars are being drawn near the rise on the north side.

In No. 2, No. 3 and No. 4 lifts, there is a large quantity of coal, each section being from 1,500 to 2,000 feet long by 550 feet wide, and the height of the coal will be from 7 to 9 feet.

The Flemming seam overlies and is separated from it by from 7 to 9 feet of strata. This seam was proved, at No. 4 level, to be about 7 feet thick, and coal of good quality.

This colliery during the next year will show an increase in output. I would not be surprised if it should double last year's production, if nothing happens to interfere with the present prospects. Last year's output would have shown an increase over the previous years had it not been for the stoppages during the months of February, March and half of April, one month being lost on account of fire, on the north side of the Cage-Pit level, No. 2 balance, back-head.

The officials are :—

John Higson, superintendent.

Wm. Arthrell, mine manager.

James Brown, underground manager.

Daniel Gillis, overman.

Alex. Munro, night overman.

John Dunbar, night overman, McGregor seam.

Lewis Campbell, surface superintendent.

David Reynolds, mechanical superintendent.

The total quantity of air in circulation was 60,000 cubic feet a minute.

I have paid 40 visits to this colliery during the year.

The number of employees :—

Miners.....	118
Loaders.....	54
Shiftmen.....	92
Boys.....	23

On surface :—

Skilled workmen..	40
Laborers	90
Boys	10

Total..... 427

*Surface Machinery.**Third Seam.*

One hoisting engine, 16 by 42, geared 32 to 112, diameter of drum, 9 feet ; face, 4 feet, 8 inches.

One engine, 8 by 12 inches ; geared, 12 to 63 ; diameter of drum, 2 feet, 4 inches ; face, 1 foot, 8 inches.

One engine, 10 by 24 inches ; geared 2 to 3.

One engine, 12 by 15 inches.

One engine, 14 by 14 inches.

One fan-engine, cylinders 15 and 26 inches by 36 inches.

One Walker fan, 19 by 5 feet, 125 revolutions, w. g., 3½ inches ; quantity, 60,000 cubic feet a minute.

One compressor, steam cylinders, 16 by 26 ; air cylinders, 16¼ by 26½ ; stroke, 18 inches.

McGregor Seam

One hoisting engine, 16 by 36 inches ; geared, 14 to 28 ; diameter of drum, 9 feet ; face, 5 feet, 6 inches.

One engine, 8 by 10 inches.

One fan-engine, 24 by 24 inches.

One fan, Black-Hawthorne, 10 by 15 feet, w. g. 1.8 inches ; quantity, 80,000 cubic feet a minute.

Seven tubular boilers.

*Underground Machinery.**Third Seam.*

One engine, 10 by 12 inches ; diameter of drum, 4 feet ; face 3 feet.

One engine, 12 by 18 inches; geared, 69 to 78; diameter of drum, 6 feet: face, 3 feet.

One engine, 6 by 8 inches; geared, 20 to 95; diameter of drum, 4 feet; face, 3 feet.

One duplex Northey pump, $4\frac{1}{2}$ by $2\frac{1}{2}$ by 4 inches; capacity, 800 gallons an hour.

Cage Pitt Seam.

One engine, $8\frac{1}{4}$ by 12 inches; geared, 11 to 74; diameter of drum, 4 feet; face, 2 feet.

One pump, Jeansville, 6 by 4 by 12 inches, 3000 gallons an hour, delivers to No. 5 level.

McGregor Seam.

One engine 16 by 42, geared 46 to 90, diameter of drum, 5 feet, face 4 feet, 6 inches.

One Jeansville pump, steam driven, 19 by 27 by 44 by 30; plungers, 4 feet by 9 inches in diameter; capacity, 60,000 gallons an hour.

Pit timber used during the year:—

Booms, 349,934 lineal feet; diameter, 7 inches.

Props, 334,039 lineal feet; diameter, 5 inches, small end.

Sleepers, 19,684 lineal feet; diameter, 4 inches.

Rails in mine:—

43,823 lineal feet, 18 lb; 7,170 lineal feet, 12 lb; 9,820 lineal feet, 30 lb.

Ten tons of rails were added last year,

ACADIA COLLIERY.

Owned and operated by the Acadia Coal Company.

Very few changes have been made at this colliery during the last year. The boiler-shed was covered with galvanized iron, and two steel smoke stacks were erected; this and the general repairs comprise the surface work. No new machinery was added to the plant, which is in good condition.

For protection against fire there are 350 feet of 2½ inch hose, and hydrants at convenient places connected to the town water system. The reservoir will hold 4,500,000 gallons of water. This is kept for emergencies: the water for the use of the plant is supplied by the town of Westville. The ventilation is produced by a Capell fan, 13 feet 6 inches by 4 feet, w. g. 5 inches. The fan is connected to a 100 h. p. engine, and is rope-driven. Fan-drift 30 feet long by 13 feet in diameter: fan-shaft is 13 feet in diameter and 64 feet deep: the fan-house 22 by 14 feet, is of brick, covered with wood, and is 16 feet from the fan-shaft.

The average barometer reading on the surface on July 13th was 29.78 inches, in the mine, 31.69 inches. On No. 11 south level the temperature was 71 degrees on the same date. On August 13th, the barometer was, on the surface, 29.68 inches. In the mine 31.57. The temperature in the mine, taken in the same place as before, was 72 degrees.

There are 5 pumps—one is placed at No. 6 level, south; one in No. 6 level, north; two in No. 10 level, and one at No. 11 level. All the pumps below No. 6 level are run by compressed air. There are three dams built of brick and cement in old levels. No explosive is used in the mine. There are 203 Wolff safety-lamps in use, and 50 in reserve. The mine is dry and dusty. The spraying is done with a water-box with spraying pipe attached: the main levels and haulage-ways are sprinkled once or twice each week. The mine gives off gas very freely. No air-crossings are used at present: one is being put in about 90 feet above No. 11 level, which leads the air from the north side to the south side. This is a return from No. 12 north. Booms and props are used on the main haulage-ways. In the walls, the roadways are built on each side with chocks, 5 by 5 feet, with lagged booms, 2 to 3 feet apart, from the top of each chock.

In the walls 8 feet props are used. The stoppings between the surface and No. 7 level, between the down-cast and up-cast, are of

brick. From No. 7 to the bottom, and other parts of the mine, the stoppings are wooden blocks, bedded in cement and plastered on the ends. Tarred canvas and boards are used for temporary ventilation. All the stoppings from the surface down to the bottom on each side of the down-cast, were repaired during the year. This has not stopped the leakage of air between the up-cast and the down-cast. The true dip is N. $49^{\circ} 49'$ E. The angle of dip is 26 degrees, the coal is very good and 16 feet thick.

During the months of July and August, the pit worked about half time, due to dulness of trade and a scarcity of cars; since August work has been steady. Very little development work has been done during the year. No. 12 levels were driven south 450 feet and stopped in March. This level is 4,300 feet long, having been driven 450 feet this year—they have to go nearly a thousand feet before they reach the boundary line between the Intercolonial Coal Mining Company and the Acadia Coal Mining Company. All the stock has been drawn out of these levels.

There are three dams in the mine, built in old levels. The main slope has been brushed and graded from No. 11 lift to No. 12 lift, and laid with track. This makes the haulage slope 5,000 feet long.

A jig has been driven from No. 11 to No. 10 lift. This is the last one to be driven on this lift, on the south side. No. 8, No. 9, No. 10 and No. 11 jigs were started off No. 12 level, south No. 8 and No. 9 were driven up to the fault, about 200 feet, and is yet about 200 feet from No. 11 lift. There is no intention at present of driving the jigs any further into the fault. No. 10 and 11 were driven up about 60 feet and stopped. An attempt was made to drive No. 7 jig over the fault to connect to No. 11 level; this work was also stopped during the month of March. Had this place been driven through to No. 11 level, it would have greatly assisted the ventilation on this side of the mine. The air inside the jigs of No. 11 lift is very warm. During my last visit the temperature in several of the working places was from 80 to 82 degrees, and on the main level between Nos. $4\frac{1}{2}$ and $5\frac{1}{2}$ jigs it was 80 degrees. The north side of No. 11 lift has been worked out, the level has been brushed and heightened from the return air-way at No. 12, out to the main slope where an overcast is being put in: when this is completed it will aid the ventilation on the north side of No. 12 lift. In the south side of No. 11 lift, No. $7\frac{1}{2}$ and No. $6\frac{1}{2}$ jigs have been drawn down to the level—these are finished. There are four walls working in No. $5\frac{1}{2}$ jig—two

south and two north. On No. 4½ jig four walls are working, two south and two north. No. 3 jig has four walls working, two south and two north. When these walls are completed no more work will be done on this jig until the jigs inside are drawn out. No. 2 jig was cleaned and re-timbered during the last year, and four walls have been started off. No. 1 jig is being driven up to No. 10 lift, and will soon be in operation. This jig is the last to be driven on this lift. Two chutes are operating on the north side of No. 12 lift: two walls on No. 2 chute and two on No. 3 chute. Three places are being worked on the south side of No. 12 lift—one on No. 6, one on No. 8, and one on No. 9.

Places are being driven along the fault which runs through the center of this lift for the purpose of an air-way, from No. 9 to No. 4 jig. This will form the air-way from No. 12 to No. 11 lift. Work to enlarge the traveling slope was begun on the 15th of June. It will be completed, in four or five months more, down to No. 8 level, where work was stopped in November, 1909. When this traveling slope is finished it should make a great improvement in the ventilation over all the mine; but I am much in doubt that it will stop the great leakage of air.

The mine is worked longwall—the walls being 40 feet from low side to low side. The seam is 16 feet thick, 8 feet of which is worked in the upper part of the seam, and 8 feet left—this is lost for the present; perhaps some time in the future a system may be devised whereby this coal can be recovered.

There are 24,000 cubic feet of air in circulation.

I visited this colliery 16 times during the year.

Official staff:

John J. Blenkinsop, superintendent.

Sammel Moss, manager.

George Burton, underground manager.

Joseph Chapple, overman.

Wm. H. Wadden, night overman.

James Ross, surface foreman.

Wm. Sutherland, mechanical foreman.

Employees :

Miners.....	95
Loaders.....	18
Shiftmen.....	38
Boys.....	40

Surface :

Skilled laborers.....	24
Laborers	41
Boys.....	4
	260

Surface Machinery.

One hoisting engine 32 by 60 inches, diameter of drum 10 feet, face of drum 7 feet 6 inches.

One engine, 12 by 12 inches, diameter of drum 4 feet 6 inches, face of drum 3 feet 8 inches.

One screen engine, 12 by 24 inches.

One bank engine.

One fan engine, 9 by 16 inches.

One Ingersoll compressor, 20 by 24 air, 30 by 36 inches, steam.

One compressor, 16 by 24 inches.

Six B. & W. Boilers, 900 h. p.

One pump, 6 by 6 by 3 inches, capacity 9,000 gallons an hour.

One feed pump, 9 by 5 inches.

Underground :

One Cameron pump, 12 by 12 by 4 by 6 inches, capacity 2,400 gallons an hour.

One Knowles pump, 8 by 16 by 4 by 16 inches.

One pump, 13 by 12 by 4 by 12 inches.

One pump, 22 by 12 by 24 by 5½ inches, capacity 12,000 gallons an hour.

One engine, 10 by 10, geared 4 to 1, drum 4 feet diameter, face 2 feet.

Timber used during the year :

Booms... 7 to 8 inches, in diameter.....	} 869,192 lineal feet.
Props ... 4½ to 5 " at small end.....	
Blocks... 5 feet long, 4½ to 5 inches in diam.	
Sleepers. 4½ feet by 3 inches.....	

Rails in mine :

4,800 feet of 32 lb.	8,400 feet of 28 lb.	2,500 feet of 24 lb.
1,500 " " 22 "	27,380 " " 18 "	4,000 " " iron,
2½ by 5½ inch.		

VALE COLLIERY.

Owned and operated by the Acadia Coal Company, Limited.

No important changes have been made on the surface during the year. The general repair work has been well done, and the plant is in good condition.

The true dip of this mine is N. 28° 30' W. The angle of dip is not uniform; near the surface it is about 26 degrees, at the bottom near the basin it is nine degrees, and at the bottom of the north-west slant it is 2½ degrees. The main slope is 10 by 6 feet, inside of the timbers. The traveling way is fairly good, except that it is low in some places. The steam-slope is not in good condition; seldom the workmen travell it, but the mechanical staff makes repairs frequently. This slope is not fit for any one to go into: it is very hot, and filled up in many places by falls, so as to make it uncomfortably small.

The system of ventilation is ascensional, the air is taken to the bottom of the down cast, and distributed to the north-west section and north-east section by means of regulators. The air ascends along the working faces, and directly to the main return: 35,000 cubic feet of air a minute is in circulation, with a water guage of about 3 inches. The fan-drift is 16 feet long, having an area of 126 feet. The fan-shaft is 8 by 8 feet, the fan-house, 28 by 11 feet, is of stone, with wooden roof, and is 28 feet from the air-shaft.

The average barometer reading taken on 17th of July, was 30 inches; on the 20th of August, 30 inches; on the 15th of September, 30 1/10 inches.

The thermometer readings on the same dates were 63°, 64° and 61° respectively. These readings were taken at the bottom of the main slope.

The explosive is monobel, of which 15,521 lb., with 32,693 detonators, were used.

Ackroyd & Best lamps with electric lighters are used. Re-lighters are placed at stations in the mine. The lamp-house is supplied with a patent re-opener and re-lighter. There are 200 lamps in service and 100 in stock.

The stoppings between the downcast and upcast are built of brick and mortar: all other stoppings are of boards and battened. For temporary ventilation tarred canvass is used. There are two air-crossings, area of each 54 feet—one is built of brick and mortar, the other of wood. This mine is very free from gas, and no spraying system is required. Timbering is done with booms and props—in some places, props only, are used. In the long-wall sections 5 by 5 feet, chocks are used. The booms are 15 feet long, diameter, 7 to 8 inches: diameter of props 5 to 6 inches.

Two sections are worked bord-and-pillar, and four sections, long-wall. In the bord-and-pillar section the rooms are from 14 to 15 feet wide: pillars from 30 to 40 feet wide; in the long-wall the width of the wall is 35 to 40 feet. This system is used on both sides of No. 7 and No. 8 levels, having been in use for the last two years; it gives good results. The coal is much easier worked. No shooting is being done. More coal can be produced than by the bord-and-pillar system, although it sometimes takes considerable work to keep the walls open and the road-ways in order. The roads are brushed and built with timber chocks 5 by 5 feet. Some of the roads require to be brushed very high as the coal in places worked at present is about 2½ feet high: some of the other walls run from 3½ to 4½ feet high. These places could not be worked at a profit by the bord-and-pillar system. Large areas of a similar height have been left in, owing to much of the coal having a very rough top and bottom, which makes it unfit to work by any method.

No development work of any importance has been done during the last year.

No. 4 level was driven 300 feet, and met the balance that was being driven up from No. 7 level. This makes a short return air-

way for all the workings below, and assists the ventilation. This air-way connects all the working places from No. 7 level up to No. 4 level, and all the coal is now taken out No. 7 level to the slant. There are in this section 16 walls in a breast, employing 32 miners, 4 loaders and 16 boys. On the east side of No. 7 level, eight places are working, employing 8 miners, 4 loaders, and 8 boys. This side is also worked long-wall, but the coal is very much harder and splinty. In No. 6 level six rooms are being worked by the bord-and-pillar system, employing 6 miners, 2 loaders and 4 boys.

In No. 8 level, east, there are two walls working, two miners in each wall. This side is just being opened up. In No. 8 level, west, there are seven walls in operation, employing 22 miners, 7 loaders and 9 boys.

In the north-east side of the mine, in No. 1 balance, eight rooms are in operation, worked bord-and-pillar, employing 12 miners, 4 loaders and 9 boys; two of these rooms are being driven north-west to meet other two being driven from No. 5 level—when connected, they will give access to a large body of coal lying on the northern side of the basin.

The output this year is 97,920 tons. This is a reduced output, due to dullness in trade. The mine has worked about half time since the month of June.

I visited this colliery 15 times during the last year.

The average number of employees on surface :

Skilled workmen.....	59
Laborers.....	49
Boys.....	2

Underground labor :

Miners.....	108
Loaders.....	43
Shiftmen.....	70
Boys	4
	335

The officials are :

Harry E. Cole, superintendent.

Robert H. Gray, manager.

Harry H. Cameron, underground manager.

John H. McNeil, overman.

Neil McKay, back overman.

James D. McKay, night examiner.

George Fraser, surface foreman.

Fred Carmichael, mechanical Foreman.

Surface Machinery.

One Walker hoisting engine, 16 by 39 inches, geared 1 ½ to 1, diameter of drum 8 ft.

One engine, 24 by 24 inches.

Two engines, 8 by 18 inches.

Two compressors, one 17 ½ by 24 by 20 inches, one 17 by 42 by 18 ½.

One fan-engine, 20 by 24 inches, directly connected.

One fan, 28 feet diameter.

Three 200 h. p. Sterling boilers, and one 50 h. p. return-tubular boiler.

One Jeansville pump, 8 by 5 by 12 inches.

350 feet of 2 ½ inch hose.

Underground Machinery.

One engine, 10 by 12 inches, diameter of drum, 4 feet, 5 inches.

One engine, 7 by 12 inches, both driven by compressed air.

One Northy pump, Duplex, 6 by 4 by 7 inches, capacity 7,500 gallons an hour.

One Cameron pump, 6 by 4 by 2 inches, 3,600 gallons an hour.

One Cameron pump, 10 by 6 by 12 inches, 8,500 gallons an hour.

One Knowles pump, 12 by 24 by 8 inches, 16,500 gallons an hour.

The last mentioned discharges all the water of the mine to the surface.

There are four dams—one on No. 7 level, one on 1600 feet level, and two on 1100 ft. level.

Booms, lineal feet 37,970 diameter 7 to 8 inches.

Props " " 323,690 " 5 " 6 "

Pit sleepers, lineal feet 10,200, diameter 4 by 4 inches.

Rails in mine, lineal feet, 4,858—32 lb.

" " 58,650—18 "

" " 22,880—12 "

DRUMMOND COLLIERY.

Owned and operated by the Intercolonial Coal Mining Company, Ltd.

This colliery has worked steadily during the last year.

The shed which was being built last year, to cover the haulage way between No. 1 No. 2 and No. 4 slope has been completed. This shed protects the haulage road from being blocked by snow, and makes it more comfortable for the drivers and horses. A new shed, 40 by 15 feet, has been built at the washing plant. General repairs have been kept up, and the surface is in good condition.

The fan is a Walker, indestructible, 20 feet, 6 inch, diameter. It is connected to a Walker engine by six 1- $\frac{3}{4}$ inch ropes, makes 215 revolutions a minute, w. g. 6.5. The engines are cross-compound, so arranged that they can be used independently. The fan-drift is divided into two compartments, 20 feet by 3 feet 9 inches. The fan-shaft is 12 by 10 feet, 325 feet deep. The fan-house 24 by 50 feet, is of brick, and is 35 feet from the fan-shaft.

The fire-fighting apparatus consists of 450 feet of 2 $\frac{1}{2}$ inch hose, patent fire extinguishers in all the mine buildings. Hydrants are placed at convenient places around the works, and are directly connected with the town water system.

The average readings of the barometer on the 6th day of August and 9th day of September, were 29.56 inch and 29.68 respectively.

The temperatures on the same dates at the bottom of the fan-shaft were 74 degrees and 73 degrees.

Water for the use of the plant comes from two large reservoirs about 2000 feet to the south of the colliery. These reservoirs are made by dams being built across a ravine.

The size of the main slope is 10 by 7 feet, inside of the timber; the traveling ways are in fair condition. There are two air-crossings in the main seam—one between No. 12 and No. 13 lifts, and one in No. 6 lift: the former is of brick and iron, with concrete approaches—the area is 9 by 6 feet—the latter is of wood, its area is 12 by 7 feet.

There are five dams in the mine; one at No. 5 level, two at No. 9 level, and two at No. 14 level. At No. 16, No. 17 and No. 18 levels, lodgments have been made in the solid coal by driving slants off the mine-bord toward the dip and then driving in a level direction. This system had to be adopted, as concrete dams would not stand the pressure. The dam at No. 5 level is of concrete, and the one at No. 9 is of the same material, the former is 16 by 12 feet by 600 feet long, and the latter is 12 by 8 by 300 feet long. The dam at No. 14 level is 9 by 14 by 400 feet long. The water from those dams and lodgements is taken out by a relay of five pumps, each delivering water to the other until it reaches No. 5 level dam, from where it is sent to the surface, by a Knowles pump with a capacity of 6000 gallons an hour.

The total number of tons raised last year was 274,726 coal and 2,714 fire-clay.

The development work is being continued steadily. There are three sections, Main Seam, No. 6 and No. 4 slope. These sections are all in the one seam. The coal is 16 feet thick. Toward the south, the coal is not so thick nor so good. There are layers of stone and partings of clay, which have increased from 3 to 4 inches to from 12 to 15 inches, so that about 14 feet of the seam is workable. The vein dips 17 degrees. The slopes have been sunk 600 feet during the year, and far enough to turn the levels off, north and south. This is No. 19 lift, and makes the length of the Main Slope, 8,200 feet. The coal at the face of this new lift looks very good and keeps the same angle. The sinking in No. 1 and No. 2 slopes was done by an engine being placed above the levels in No. 18 lift, and the coal dropped into the bottom of No. 18. The main slope from No. 18 lift to No. 17 lift was brushed and graded and relaid last year with 32 lb. rails. The south levels in No. 18 lift have been driven about 1200 feet during the year, and are in from the slope nearly 2,000 feet; these levels are still going. No. 3 balance has been started off this level and is in 250 feet. It is being pushed on so as to get through on No. 17 level for a return air-way. The air-way has been started to connect to the main return at No. 17 lift. Considerable gas is given off in this air-way and in the balance. It has been found necessary to stop the air-way until No. 3 balance is connected to No. 17, No. 3 balance having the shortest distance to go. It was found that it confined the air too much to keep both places going.

The temperature on the main level between the air-way on No. 3 balance was 80 degrees, at the face of No. 3 balance, 82 degrees, and at the face of the air-way driving up, 82 degrees during my last visit.

As soon as No. 3 balance is connected to No. 17 lift, it will relieve the situation. No. 18 levels north, are being driven, and will soon reach the boundary. They have been driven during the year about 1,000 feet. The air-way on this side of the mine was driven down by means of an engine, and has been connected with the levels. This assists the ventilation very much on this side of the mine. No. 17 lift, south levels, were driven to a fault and stopped. Some work was done to prove the fault, but nothing of value was found. No. 18 levels will prove the fault. No. 6 and No. 7 jigs have been driven up to No. 16 lift. Six walls are working in No. 7 jig—three on the north side and three on the

south side. On No. 6 jig, six walls are working—three south and three north. On No. 5 jig, five walls are working—three north and two south. On No. 4 jig, three walls are working—two south and one north. No. 3 jig has been drawn to the fault, and a new jig is being driven alongside the old one. No. 1 and No. 2 jigs have also been drawn down to the fault and stopped, until No. 6 and No. 5 inside are drawn. This lift is very difficult to ventilate, owing to a large fault which runs through it near the top. It is an up-throw, nearly the full thickness of the seam, and it is almost impossible to keep air-ways open and to keep the top up. This lift is dusty and the air is hot.

The average temperature taken at the working face of No. 4 jig was 82 degrees. The length of the wall is 40 feet from low side to low side.

In No. 17, north, No. 1, No. 2 and No. 3 jigs are being completed up to No. 16 lift. No. 1 jig has six walls working—three south and three north; No. 2 jig has six walls working—three south and three north; No. 3 jig has five walls working—three south and two north.

The same fault occurs on this side of the mine in No. 1 and No. 2 jigs. It was not seen in No. 3 jig. This side is not so hot as the south side. It is difficult to get the air to circulate, due to the walls on each side of the jig crushing and falling, which practically shuts off the air, until another head has been put up inside of the crush. Probably two or more of these crushes may have occurred at the same time. The mine is very deep, having reached a depth of 8,200 feet on the angle, and has about 2,400 feet of cover.

No. 16 lift has all been worked out, and the return air-ways on both sides of this lift have been enlarged and re-timbered up to No. 15 lift. The riding slope is now being graded and brushed, and re-timbered from No. 16 to No. 17 lift. When completed, the riding trips will run to No. 17. The mine gives off gas very freely. The roadways and traveling ways are fairly damp, but the working faces are very dusty and hot. The system of work is longwall. It is worked in seven feet, in the top part of the seam. This leaves seven feet in the bottom which may be considered as lost, as no way has been devised to take it out. The angle of the seam here is 17 degrees.

In No. 2 section, No. 6 lift, the work is principally drawing pillars and ribbing. The north side of this lift has all been pillared out to about 300 feet from the slope. The south side sinking from No. 6 to No. 7 has all been pillared out to the top of the sinking. Another sinking is being driven about 500 feet further north. It has gone through some pillars, and through some work, where no pillars were found. It is too soon to know what may be gotten, as this is all prospecting work. Two balances are being driven up toward No. 5 level: one of them is up about 300 feet, and the other about 150 feet. I have no doubt that a large body of pillars will be found in this section, when they get up to the No. 5 level. Two levels have been started in the old No. 8 levels south, they are driven in the bottom of the seam under the old crushed; pillar work. It is the intention to try to connect them with No. 4 for an air-way, and to catch all the water from the rise which has been running to the lower workings. It is too soon to say that they will be successful in getting the bottom part of the seam. No. 3 section of this seam is No. 4 slope. This section is operated independently from the other two, although they are all connected. The slope is about 700 feet south-west from No. 1 and No. 2 slopes, and the product is hauled from No. 4 slope to No. 2 by means of horses, where it is screened and shipped, along with the coal from No. 1 and No. 2. No. 4 slope runs from the surface, nearly the same course as No. 1 and 2 slope, for about 1000 feet, where it curves to the south, with an angle of about 20 degrees, for about another 1000 feet, to the level. This level runs nearly south 2000 feet; it is operated by horses. The back slope was put down at this point, crossing the old levels at each lift, until it reached to No. 11 level which was driven from No. 2 slope. This slope was sunk 500 feet during the last year. It has passed No. 11, and is going on to No. 12. The slope is being re-laid from No. 10 to No. 11 with 32 lb. rails. Two levels have been turned off on the south side, and two on the north side; both north and south levels are being double-shifted, and have been driven in about 150 feet. No. 10 levels, south, were driven into the old crush about 1300 feet. About 1000 feet of solid coal was got in this level, which has been left in while operating it from the No. 2 slope. Two balances have been put in this block; the No. 1 balance is being timbered, and built up on each side with 5 foot square chocks, leaving a width of 9 feet between. This is to prevent the sides of the ribs from crushing. No. 2 balance has been driven up to the old crush and six bords are now operating on it; three driving south and three north. Work in No. 10 south, has been stopped since July 15th. The levels were advanced this year, up to that time, about 300 feet. A balance and a back-head have also been driven to the

rise 200 feet. It is stopped in the meantime. These levels have now reached about 800 feet south of the slope, or between 450 and 500 feet farther south than any other part of the workings has yet reached. In No. 9 lift, north, two pillars are being drawn. On this lift it was found that not much coal had been left in. No. 8 lift, north, has three balances working—No. 1 and No. $1\frac{1}{2}$ and No. 2. No. 1 has four bords driven in, and the pillars being got ready to be drawn back. No. $1\frac{1}{2}$ has four bords driven and the pillars will be drawn as soon as the ribbing is done. No. 2 balance has three pillars working, two on the south side, and one on the north side—these will soon be finished. A large quantity of coal has been taken out of this section, some more may yet be got, as this is the level that is intended to be connected to the one that is being driven from No. 8 level in No. 2 slope to the old crush. All the other work toward the rise in this slope has been finished. The stoppings between the traveling slope and main slope, and along the level, are of brick and mortar, put in this year.

There are 597 Marsaut safety lamps in use, 153 less than last year.

The system of ventilation is ascensional; the current is taken from the bottom of the main intake, where it is split and distributed by means of regulators. In No. 4 slope, the air is in one current, with the exception of No. 11 levels on the south side, which is aired by a small split. The return air from No. 4 slope finds an outlet into the old workings of No. 6, in No. 2 slope, thence to the fan, at No. 5 lift. All the stoppings in the main seam are of brick and mortar, down to No. 10 lift; stoppings below this are of wooden blocks, laid lengthwise in mortar and plastered on the ends, as bricks will not stand the pressure at this depth. There are 49,500 cubic feet of air a minute in circulation. In No. 4 slope there are 17,000 cubic feet of air a minute. The fan runs at 215 revolutions a minute, w. g., 6.5 inches. There has been a considerable amount of work done during the last year in repairing and enlarging the air-ways. This work is done by means of an engine, which is placed in the return, and a roadway made from one lift to another. The refuse is hoisted to one of the old lifts, and then sent to the surface. Four or five men and boys are continually kept at work in the return air-ways.

I visited this colliery 40 times during the last year.

Officials :

James Floyd, superintendent.

Malcolm Blue, manager.

Alex. Sutherland, underground manager, main seam.

Donald McNeil, " " No. 4.

Robert Lachlan, day overman, main seam.

George Wright, " " " "

James Henderson, back " " "

Wm. R. Wright, " " " "

Thos. Gray, Jr., " " " "

Alex. R. Stewart, " clay seam.

Roderick Johnston, " No. 4 slope.

Wm. Gray, Jr., back " " " "

Thos. Stewart, night examiner.

James Smith, " "

Thomas Floyd, surface overman.

Wm. Dalling, " foreman.

Jas. Saunders, mechanical foreman.

Miners and loaders..... 320

Labourers and shiftmen..... 182

Boys..... 74

Surface :

Skilled labourers..... 69

Labourers..... 105

Boys..... 22

Total..... 772

Explosives used in mine :

Excellite..... 3,359 lb.

Monobel..... 2,970 "

Saxonite..... 40 "

Detonators..... 12,507

Timber used during the year :

Booms 10, 12, 14 feet; thickness 6 to 7 inch 652,978 lineal feet.
Props, blocks and sleepers..... 2,544,551 " "

Surface Machinery.

One hoisting engine, 28 by 60 inches, diameter of drum 9 feet.

One man-engine, 16 by 36, geared $3\frac{1}{2}$ to 1, diameter of drum 8 feet.

One engine, (No. 4 slope,) 25 by 24 inches, geared 4 to 1, diameter of drum 8 feet.

One compressor, 22 by $2\frac{1}{2}$ by 39 by 35 inches, capacity 3000 cubic feet a minute.

One compressor, 18 by 30 inches.

14 boilers, 2,240 h. p., evaporation 15,000 gallons a day.

One fan, 20 feet 6 inches, 215 revolutions, w. g. 6.5.

Underground Machinery.

Two engines, 7 by 12 inches, geared 5 to 1, diameter of drum, 2 feet 6 inches.

One engine, 6 by 12, geared 6 to 1, diameter of drum, 8 feet.

One engine, 7 by 12, geared 5 to 1, diameter of drum, 3 feet.

One engine, 10 by 12, geared 3 to 1, diameter of drum, 3 feet.

One engine in No. 4 slope, 12 by 15, geared 3 to 1, diameter of drum, 3 feet 4 inches.

Pumps :

One Knowles pump, 8 by 14 by 24 by 8, capacity 6,000 gallons an hour.

One Knowles pump, 11 by 22 by 4 inches, capacity 2,880 gallons an hour.

One Northey pump, 11 by 18 by 4 ½, 3,960 gallons an hour.

One Northey pump, 12 by 12 by 4 ½, 2,880 gallons an hour.

One Cameron pump, 10 by 12 by 4 ½, 1,800 gallons an hour.

Rails in mine :

32,150 feet.....	32 lb.
409,570 “	18 “
9,200 “	2 ½ by 2 inch iron.

Yours truly,

THOMAS BLACKWOOD,

Deputy Inspector of Mines.

*Report of Accidents in Coal Mines of Nova Scotia (Pictou District) Year ended
September 30th, 1910.*

No.	Date. of Accident	Mine.	Name.	Age.	Remarks.	Fatal.
1	1909.					
2	Oct. 9.	Vale Colliery...	J. C. McDonald...	22	Loader, caught btwn prop and box, arm broken.	
	" 16.	Allan Shaft, No. 2.....	John Arthrell....	25	Shot-firer, shot went off while he was going in. Injured head and shoulders.	
3	" 19.	Acadia Mine..	Geo. H. Burden...	36	U. G. Managr, rope broke, car ran back on him, back hurt, leg injured at knee.	
4	" 23.	"	John Ramage....	45	Miner. Fall of coal. Back and groin injured.	
5	" 8.	Albion Mines..	James Caddy.....	.....	Shiftman, inj. by ballast box, finger badly brsd.	
6	Nov. 3.	"	Clarence Bartley .	20	Cage-runner. Brake-band bolt. Scalp wound.	
7	" 13.	"	Arch McDonald..	32	Miner, fall of coal, shlder hurt and scalp wound.	
8	" 22.	Allan Shaft, No. 2.....	Rod McMasters ..	22	Brake-holder, fell in Steep heading, ribs broken.	
9	" 29.	"	Harry Atwater....	...	Miner. Fall of coal from face. Leg broken.	
10	1910.					
	Jan. 17.	"	Hiram Millard....	24	Bottomer, caught by cage, body slightly injured.	
11	" 21.	Albion Mines..	Vincent Mahar....	27	Miner, premature shot, face, arms cut and burnt.	
12	" 22.	Allan Shaft, No. 2.....	James Curry.....	22	Cage-run., knocked off cage, back inj. slightly.	
13	" 27.	Albion Mines...	Elmar Leonard ...	28	Miner. Fall of top coal. Instantly killed.	1

14	Feb.	4.	"	...	Wm. Baxter.....	27	Loader.	Fall of stone.	Instantly killed.	1
15	"	7.	"	...	Wm. Colburn.....	35	Miner.	Fall of stone.	Right leg broken.	
16	Mar.	18.	Vale Colliery...	...	Hugh M. Grant..	42	Miner.	Fall of stone.	Bone in foot broken.	
17	April	3.	"	...	Kenn'th Chisholm	50	Miner.	Coal from shot.	Arm broken.	
18	"	13.	Acadia Colliery	...	Hugh Holland...	17	Driver.	Fell in front of full trip.	Leg broken.	
19	May	12.	"	...	Edward Bigney...	15	Trapper.	Run over by full box.	Instantly killed.	1
20	"	27.	Drumm'nd Col.	...	William Rundle.	34	Miner.	Coal falling from face.	Leg injured.	
21	June	10.	Albion Colliery	...	Wm. B. Downs...	26	Machinist,	scalded or burnt, cause unknown,	fatal.	1
22	"	14.	Vale Colliery...	...	James Trott.....	24	Miner.	Shot fired on him.	Two ribs broken.	
23	July	4.	Albion Mines..	...	John Miller.....	21	Cage-run,	hand caught between room and loaded box, thumb splintered.		
24	Sept.	9.	"	...	Rod McKenzie ...	33	Miner.	Fall of roof.	Thigh broken.	

SPRINGHILL, CUMBERLAND CO.,

November 14th, 1910.

HIRAM DONKIN, ESQ.,

*Deputy Commissioner, Public Works and Mines,
Halifax, N. S.*

DEAR SIR :—I have the honour to submit my annual report on the coal mines of Cumberland County for the year ended September 30th, 1910.

SPRINGHILL COLLIERY.

Owned and operated by The Cumberland Railway & Coal Co.

During the last year, labour troubles have interfered with the work of this colliery.

In No. 1 seam more than 400 feet of level, west of tunnel, were driven, with bords east and west. A chute, 300 feet west of the tunnel, is now being driven which will connect with the 2,850 feet level, and gain the coal to the rise which is about 6 feet thick, and local stone very thin.

NO. 2 SEAM.

In this seam the 3,300 feet level, east, has been driven 500 feet; several troubles and falls have been met. The levels to the rise have been cleaned and timbered, 2,500 feet, and two chutes east of No. 5 slope driven to connect with the half-way level. The levels and working places to the rise were standing, unattended for several months, at the beginning of the strike, consequently many heavy falls have taken place. While the officials were willing to help the repair work in the mine, their services during the strike were required at the boilers and engines, which positions they have faithfully filled.

On the west side of the 3,300 feet level, pillar work has been carried on in No. 36 and No. 45 chutes, and other places to the rise. The greater part of this work is in troubled ground, including the railroad pillar and mine bord, both of which were extracted along with the pillars to the rise.

The sinking from the 3,300 feet level to the 4,000 feet level was driven 300 feet, making the total length of this lift 700 feet. Levels, counter-levels and mine-bords were broken off east and west with cross-headings at intervals of 9 feet.

No. 3 MINE.

In this mine very little coal was hoisted during the year. The production consists of coal gathered while making repairs, as the object in this mine was to keep the main hoisting slope, fan-way, and pipe-board in good condition ; this has been done. The levels east and west of the 3200 feet and 3800 feet levels are now being repaired, and will be pushed ahead as the coal is required. There is an adequate amount of ventilation for all purposes.

A Blake pump, capacity 500 gallons a minute, has been erected on the 3,400 feet levels, No. 2 mine.

Timber used during the year :

Props and booms, 332,043 lineal feet.

Rails in mine, 79,200 feet

JOGGINS MINES.

Owned and operated by the Maritime Coal, Railway & Power Co.

This mine has worked steadily during the year—output about 500 tons daily. The levels on No 1, No. 2 and No. 3 landings have each been driven 1,000 feet, and balances driven. Some changes have been made in the machinery about the mine, which is now nearly all run by electricity. The power, 11,000 volts is from the Maritime Coal, Railway and Power Company's plant, Chignecto. The change from steam to electrical power has brought about a large saving in operating expenses. A change has been made in the mode of working: the balances are now driven narrower and the coal lowered by engines or motors—this does away with cages and ballast boxes.

The ventilation of the mine is good. A Capell fan which will be driven by electricity, is now being erected. It will improve the ventilation.

The wharf has been improved, pockets have been built by which small vessels can be loaded, and sail out on one tide.

Officials :

G. B. Burchell, manager.

Samuel Gray, underground manager.

Robert MacAloney, overman.

James Fairley, “

John Coleman, “

Marsaut safety lamps are used. 22,000 lb. of powder, and 3,200 lb. dynamite were used last year.

Timber used during the year :

Props, booms and ties, 657,260 lineal feet.

Rails in mine :

116,450 lineal feet.

CHIGNECTO MINE.

Owned and operated by the Maritime Coal Railway & Power Co

Good progress was made at this colliery during the last year, the output was about 250 tons a day. Levels on the 1900 feet lift have been driven on each side.

On the 20th of June, an explosion occurred in the mine which caused the death of William Stevenson, Examiner, and Arthur Wood, boy-helper.

This explosion interfered with the operation of the mine for a short time. On September 14th, owing to the unsettled condition of labour in Cumberland County, it was decided to close the mine temporarily.

Officials :

John Murphy, Manager.

C. J. Kent, Underground Manager.

Marsaut safety lamps were used.

The total amount of explosives used were 3100 lbs. of powder.

Timber used during the year :

Booms, props and ties, 189,980 lineal feet.

MINUDIE MINE.

This mine is entered by a slope 2200 feet long, and 10 feet wide, pitching at 19 degrees. The coal is hauled by a $7/8$ rope, six cars in each haul. The empty car holding 1140 lbs. The bankhead is of wood. The mine is comparatively dry. The pumps working about 6 hours only, out of 24. The airways are 8 by $5\frac{1}{2}$ feet, and the fan-drift 5 by 8, 20 feet long. The fan is directly connected, and the fan-house is 6 feet from the mouth of the upcast shaft. The air is split three times in the mine. Stop-pings are made of flat booms laid in mortar. The seam is three feet thick with fire-clay parting in the center, varying in thickness from 6 to 20 inches. The coal is hard and pitches at an angle of 19 degrees. The mine is worked on the longwall advancing system. The props are 9 inches in diameter and used for butt building, and on end along the face. Each place is 50 feet wide, and it is started from the level as soon as the level is far enough advanced. On some of the levels there are 10 working places which gives 500 feet of working face. The working face, however, is not in a straight line, due to each place breaking off one after the other. There are four dams in the mine 8 by 5 feet, built of concrete, and faced with three-inch plank. The capacity of the reservoir on the surface is 1,000,000 gallons. The mine is damp—there is some dust, mostly stone dust, caused by the brushing of the roof. There is no spraying apparatus, and open lights are used throughout the mine. The brattice cloth is non-combustible; the main slope is used for a traveling road with places of refuge at proper intervals.

The mine produced last year, 54,497 tons. There were 5000 lb. of black powder used, and 700 lb. of dynamite—about $10\frac{1}{2}$ tons of coal to each lb. of powder used.

This mine has not been worked steadily during the year. The slope has not been driven. The levels have been driven, and working places started to the rise. A section is being opened to the east of the big fault on the 1,200 feet level from which a large quantity of coal is expected. This coal is equal in thickness and quality to that on the outside of the fault. This fault was passed through in the 1,600 feet level, east, but the ground is yet irregular—the coal being very much broken by small faults. The mine is in very good condition, and is free from gas. The ventilation is good, there being an average of 30,000 cubic feet of air a minute. There have been no changes on the surface since my last report, except the erection of two Leonard boilers, 60 h. p. each.

Surface Machinery.

One Stine fan, 7 feet diameter.

One pair horizontal hoisting engines, 12 by 15 inches, geared 4 ½ to 1, 75 h. p., drum 5 feet.

One double hoist, 7 by 10 inches, drum 2 feet.

One fan-engine, 10 by 12 inches, 25 h. p.

One single engine, 12 by 30, running saw-mill.

One center crank engine, 8 by 10 inches—cleaning plant.

Three locomotive boilers.

Two vertical boilers, 48 inches by 7 feet.

Two Leonard boilers, 60 h. p. each.

Four return tubular boilers, 54 inches by 14 feet.

Cleaning plant: 1 tipple, 1 shaking screen and picking belt, 30 feet long by 5 feet wide.

One Northey pump, 12 by 13 by 7 inches (fire protection.)

Underground Machinery.

One pump, 18 by 7 by 24 by 24 inches, capacity 18,000 gallons an hour.

One pump, 6 by 10 by 12 inches.

One pump, 5 ¼ by 3 ½ by 6 inches.

One Blake at 2,200 feet level.

Booms, props and butts—370,311 lineal feet.

Rails in mine—33,720.

SCOTIA MINE.

Owned by the Great Northern Coal Co.

This mine was practically idle during the year, owing to the bankhead and engine-house being destroyed by fire in October, 1909. Since March, 1910, the owners have been engaged in opening the mine, pumping and re-timbering the slope.

A new bankhead, metal and wood, has been erected which will handle about 250 tons a day. A new hoisting engine has been placed.

The coal is mined by Hardie and Rand coal cutting machines, air being supplied by a 10 by 14 inch Rand compressor, driven by a 25 h. p. Robb-Armstrong high speed engine.

A new engine-house and compressor house are completed. A boiler-house and carpenter's shop are being built. The mine is worked bord-and-pillar, and is in good condition. The ventilation is natural, and the quantity will be increased in the near future.

Surface Machinery.

Two boilers, one Mumford, 70 h. p.—one Standard, 75 h. p.

Boiler feed water is supplied by a 2½ h. p. gasoline pump, which forces the water 1400 feet from the dam to the reservoir.

Underground Machinery.

One Worthington pump, 10 by 10¼ by 16 inches.

One No. 8 Cameron pump.

A Jeansville pump will be placed on the surface for protection against fire.

288 lb. of black powder, and 500 lb. of compressed powder have been used.

Timber used during the year :

Booms.....	5000 lineal feet,	8 inches in diameter.
“	300 “ “	10 “ “ “
“	1800 “ “	5 “ “ “
Props	9600 “ “	5 “ “ “

Rails in mine :

2,640 lineal feet.

FUNDY MINE.

Owned by the Atlantic Grindstone, Coal & Railway Company.

There has been very little work done at this colliery during the year.

Mr. James Baird had a few men employed in the early part of the winter in the old slope, getting out some coal for local sales, the coal being taken out above the water drain. This drain saves pumping. This mine has been recently sold, and I hope in my next report to be able to say that it is a large producer.

EASTERN MINE.

Owned by the Eastern Coal Company.

This mine closed in August, owing to the main seam not being located. Since then, there has been several bore-holes put down without satisfactory results.

Strathcona mine and Jubilee mine have been idle during the year, and both are full of water.

MAPLE LEAF MINE.

This mine was opened by the Maritime Coal, Railway & Power Company to prove the Joggins Main Seam, at a point two miles east of No. 3 slope. The Maple Leaf slope was driven 300 feet, and levels turned east and west for 300 feet. The seam proved satisfactory, and work was stopped until a branch line of railway will be put in to connect with the main line.

BLACK DIAMOND MINE.

This pit is on the area of the Maritime Coal Railway & Power Company, and is about 2 ½ miles from Maccan Station on the line of the Maritime Railway. The mine was unwatered and producing coal in July, Since that time a new lift has been sunk, and levels are now being driven. The coal from this seam, (the Lawson) is in very high demand as domestic coal. The seam is about two feet thick.

All the mines that are in operation in Cumberland are in good condition.

I have the honour to be,

Your obedient servant,

A. V. CAMERON.

Deputy Inspector of Mine.

*Report of Accidents in Coal Mines of Nova Scotia (Cumberland District) Year ended
September 30th, 1910.*

No.	Date.	Mine.	Name.	Age.	Remarks.	Fatal.
	1909					
1	Dec. 22.	Chignecto	Frank Sims	34	Miner. Fall of stone. Leg broken.	
2	Mar. 29.	Minudie	Thos. Mandaley...	40	Miner. Riding on full box. Back hurt.	
	1910					
3	April 14.	Springhill No.2	James Blackburn .	16	Driver. Injured between boxes. Hips broken.	
4	" 29.	" Surface	Norton Howard..	50	Carpenter. Oiling conveyor. Left hand taken off.	
5	May 16.	Joggins Mines.	Fidel Landry	40	Miner. Fall of stone. Killed.	1
6	June 20.	Chignecto	William Stevens..	35	Examiner. Explosion. Killed.	1
7	" "	"	Arthur Wood	17	Helper. Explosion. Killed.	1
8	Aug. 26.	Springhill No.2	Jos. Krantz.....	37	Miner. Fall of stone. Killed.	1

SPECIAL REPORTS

REPORT ON FIRE AT ALBION MINES. PICTOU COUNTY.

On Sunday, January 20th, 1910, indications of fire were found in the Cage-Pit in the back-head of No. 2 balance between No. 2 and No. 3 cross-cut, in the north side of the Cage-pit level. It was found necessary to build the fire off. A stopping was put in across the back-head below the seat of the fire ; also one in No. 3 and 4 cross-cuts, and one in the top of the back-head on the low side of the Iron-door level. These stoppings cooled the place, and allowed work to be resumed in that side of the mine which had been idle during the time stoppings were being put in. A strict watch was kept on this section, night and day, for fear that the fire would break out again. In the meantime the level pillar in Iron-door level was drawn by three shifts of men, past the back-head so as to get a good fall in it, and close off all communication between it and the fire. This was successful, as a few days after the fall the place was perfectly cool, and a good current of air in all parts of the workings to the rise of the fire, until March 10th. On March 12th, fire began in the same place. A stopping was then started in No. 2 cross-cut south of the fire, and work continued without intermission until the afternoon of the 14th. At five o'clock in the afternoon of the 14th, it was decided to abandon this work, and put in dams in the main levels, in the counter-level, and in No. 2 cross-cut. These were the only openings between the fire and No. 2 balance, the idea being to flood the section. During the time the stock was being removed, the fire was making great headway, and it was found almost impossible to put in the dams. After a short consultation it was decided to call on the Dominion Coal Company and the Nova Scotia Steel and Coal Company, for assistance. These companies promptly responded to the call and sent their men without delay, by special train. They arrived at Stellarton at 12 p. m., on the night of the 15th. In the meantime the company had secured all the hose that could be got from the

different fire departments in the near towns. Two pumps and three lines of $2\frac{1}{2}$ hose were placed in the low level, which was full of water, about 800 feet or so from the seat of the fire. By the time the Cape Breton men arrived with the Draeger apparatus, two streams of water were playing on the fire. As soon as the men could get equipped with apparatus, they went to work. The fire was very serious at this time. At first the streams of water were not very effective as the pumps were not giving good work; but by five a. m., on the morning of the 16th, the water was doing all that could be expected. Streams were kept continually playing on the fire, and a third pump was placed on the level at the foot of the balance, and a line of hose taken from it to the fire. This pump was using the water that was running back from the fire, and its service was very effective. Thus, with the hard work of the men using the Draeger apparatus, the fire was soon completely under control. On the morning of the 17th, it became a question what was to be done to reach the seat of the fire. It was decided to clean out the back-head from the level up to where the stoppings were, and put in a chute so as the debris could be taken out of the way. While this was being done the three streams of water were kept continually on the fire.

Some timbering was done, and everything that could be done for safety. By the 21st the chute was cleaned and timbered up to the stoppings. These stoppings were 11 feet thick, the first one was built of 5 feet props laid in cement, lengthwise, then a wall of one foot of cement built, then 5 feet of timber in cement as before. As soon as the chute was ready, small openings were made through the stoppings, one on each side, and one in the middle. The hose was put through these openings, and the water thrown into the fire section. Openings large enough to admit a man with the Draegar apparatus were made through the stoppings. After examining the place it was found necessary to do some timbering, and get some air in circulation inside the stoppings so that the men could work. This was done by means of a partition being erected, and a small fan with tin pipes 10 inches in diameter, put in. As soon as the timbering was done, the debris was taken away, until the seat of the fire was reached. Where the fire started was found to be opposite No. 3 cross-cut, in the bottom, and not a very large area. The cleaning was continued to the top of the back-head to the Iron-door level. The cross-cuts were also cleaned out, and no fire was found in any other parts.

I consider the cleaning out of the place was advisable, as it has given the management an idea of where those fires originated, and how to deal with them in the future. It has always been

believed by the management, as well as others, that all the fire indications which have been found in this seam previously to this one, originated in the long-wall work in the four feet seam, which overlies the Cage-Pit seam, and is separated from it by 7 or 8 feet of strata. It was first thought that this fire also originated in that part of the workings, but the work done at this fire has proved that it was purely a gob-fire caused by spontaneous combustion from the Iron Pyrites which had been left lying and the loose coal falling on it caused it to heat and ignite.

In future, if all the old balances and back-heads are cleaned out and loose coal taken away, fires in the Cage-Pit seam will be a thing of the past. There has been, in years gone by, a large body of coal lost in this colliery which is not likely ever to be recovered, it having to be built off for protection against fire.

In the section where the fire was, a large section of pillars would have been lost if the company had not been successful in getting it cleaned out.

I have grave doubts that the fire would have been put out if it had not been for the timely arrival of the Dominion Coal Company's and the Nova Scotia Steel Company's men, with the Drægar apparatus and fire-fighting material. The men lost no time after their long journey in getting into their helmets and going to work. It was soon evident after a few hours of constant and strenuous work, that they would be successful in getting control, which they did after 24 hours, and that it was only a matter of time until the seat of the fire would be reached. As this is the first fire that I have had the privilege of seeing fought with the Drægar apparatus, I must say that I am highly impressed with it, in fact I cannot do justice to its merits. I have already stated that I have grave doubts, if the fire would have ever been under control without the Drægar apparatus. After what I have seen, I think that every coal company should have them, or some others of a similar kind. I do not think that any colliery is complete without an outfit of this kind, as no one can tell at what time they may be required.

I see by the Press that the Mines Department of British Columbia, makes it compulsory for the coal companies in that Province to be equipped with it. Legislation to the same end has been passed in England. I hope it will not be necessary for our

Government to have to make it compulsory in Nova Scotia, as the companies will see the wisdom of following in the footsteps of the Dominion Coal Company and the Nova Scotia Steel Company in having them installed in every colliery in Nova Scotia without being compelled to do so by legislation.

THOMAS BLACKWOOD,

Deputy Inspector of Mines.

BIRCH GROVE.

CAPE BRETON COUNTY.

Further prospecting has been carried on by the Dominion Coal Company during the last six months on the coal areas formerly owned by the Cumberland Railway & Coal Co., in the Cow Bay basin. A pair of slopes have been driven 350 feet on the north side of the basin. There are two feet of coal and shale at the top of the seam near the outcrop: as the seam gains more cover the coal appears to improve in quality. The lower bench which is 6 feet thick, is good looking, and of excellent quality. There has been no work done on any of the underlying seams. There are about 30 men employed here. Temporary buildings have been erected, consisting of a forge, engine-house, and a stable. There are about 350 tons of coal banked, apparently of good quality. The seam is known as the 8 feet seam, or the "Neville seam." Prospecting is still being done, and it is the intention to drive the slopes through to the southern outcrop.

JOHN J. MCNEIL,

Deputy Inspector of Mines.

REPORT ON
EXPLOSION AT CHIGNECTO MINE.

SPRINGHILL,

June 21st, 1910.

HIRAM DONKIN, ESQ.,

Deputy Commissioner of Public Works and Mines,

Halifax, N. S.

DEAR SIR:—I regret to inform you that an explosion occurred yesterday on the east side of the 1900 feet level, No. 3 balance, Chignecto Mine, whereby two lives were lost.

There were four men only in the pit at the time of the explosion—two water-carriers, the Examiner, Wm. Stevens and Thomas Wood, his traveling companion; the examiner and his companion were killed.

Stevens' body was found about 20 feet from the face of the balance, which is up about 140 feet; the body of his companion was found under a fall, at the bottom of the balance.

My opinion is that the ventilation became defective in this balance during Saturday night and Sunday, perhaps by a fall shifting the brattice, and when the Examiner entered the place on Monday morning he lighted an accumulation of gas; or he may have started to brush the gas down on to the level, where we found an open lamp, one of the old fashioned kind, under the fall which covered Wood's body. Wood may have had the lamp burning and lighted the gas as it was brushed down to the turn. The exact conditions however that brought about the explosion may never be known. Examiners are forbidden to carry open lights.

This mine has been very clear of gas for the last year.

The officials were completely exhausted when I arrived at the mine and I immediately began to restore the ventilation. We carried the ventilation temporarily 1700 feet, the stoppings having been blown out. Heavy falls also occurred on the level. The work was perilous, but we took the last body out at 7 o'clock last night.

The inquest will be held tomorrow afternoon, and I shall forward you a copy of the verdict.

Yours truly,

A. V. CAMERON,

Deputy Inspector of Mines.

Copy of the finding of the jury in the above accident :

That Thomas Wood and William Stevens came to their death as a result of an explosion in Chignecto Mine on the 20th of June, 1910, and that no blame is attached to the Manager or officials of the mine.

(Sgd.) DR. AVARD,

Coroner.

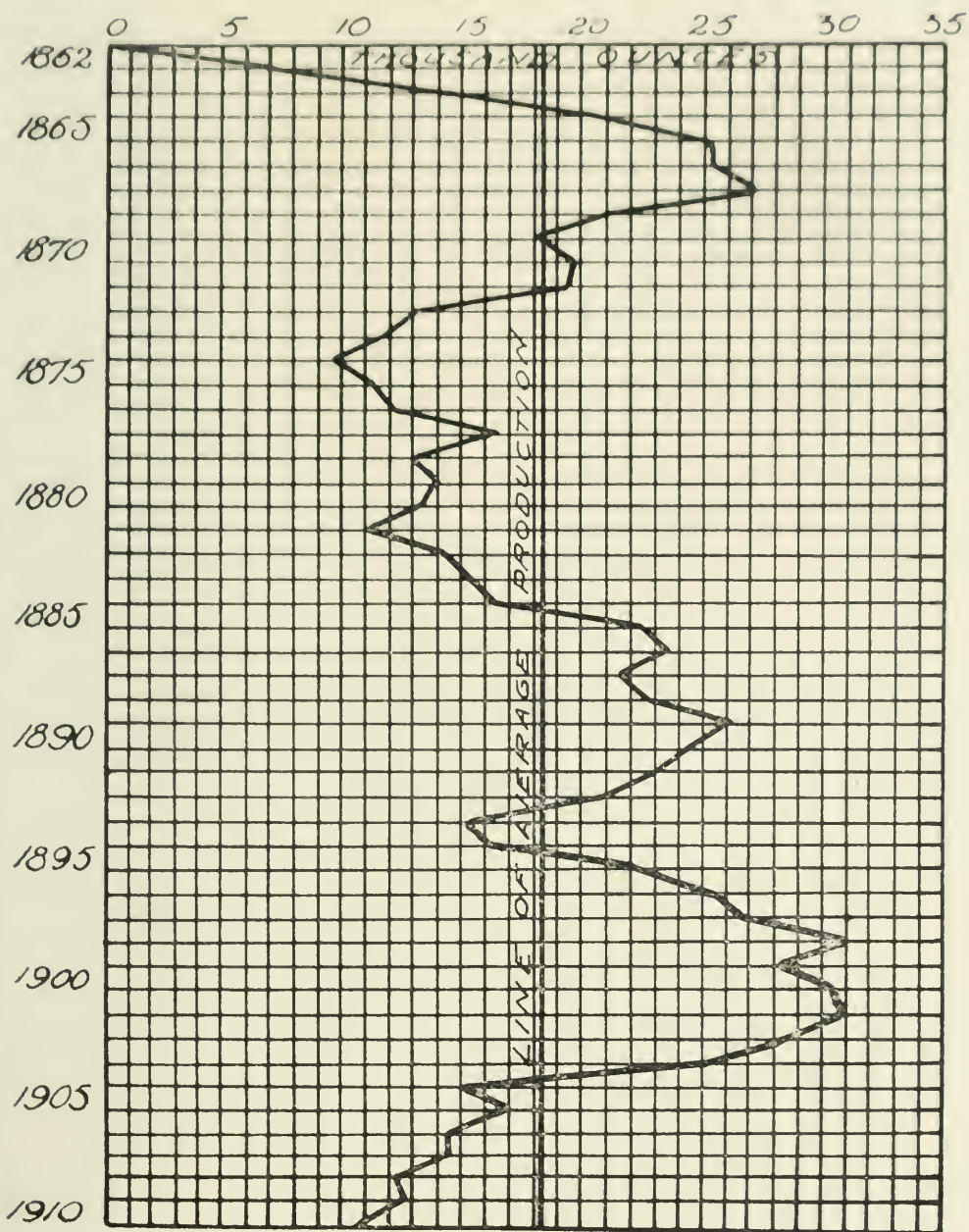
Metalliferous Mines.

From 49,557 tons of ore mined and crushed, 10,675 ounces of gold were recovered, being slightly less than the production of the year ended September 30th, 1909.

Reports on the gold and other metalliferous mines of the province by Mr. H. B. Pickings will be found in the following pages.

YEARLY YIELD OF GOLD

1862 to 1910



HIRAM DONKIN, ESQ., C. E.,

Deputy Commissioner and Inspector of Mines.

Sir:—I beg leave to submit to you, my report on the metalliferous mines of the province for the year ended September 30th, 1910.

GOLD

The production of gold during the year ended September 30th, 1910 was 10,675 ounces recovered from 49,557 tons of ore mined and crushed, being an average yield of \$4.09 a ton. This production shows a decrease of 9,501 tons crushed, 1,822 ounces of gold recovered, and an increase of \$0.04 in the average yield a ton.

I regret to report that the number of tons of ore mined, is the smallest since 1894, and the number of ounces of gold recovered the smallest since 1874.

The decline in the gold mining industry must be attributed to, not one or two, but a combination of causes of which, insufficient capital, scarcity of good labour, past wild-catting, unintelligent direction of operations: cost of fuel and lack of prospecting, take important places.

The cessation of work at the Richardson mine at Goldboro, due indirectly to a "cave" which took place in the old workings marks the closing of what has been in recent years the largest producer of gold and the largest employer of men, among the gold mines of the province, and has produced during the 18 years it has been operated 52,333 ounces of gold, valued at \$994,427 from 395,661 tons of ore mined and milled.

During the year, and since the closing of the old mine, extensive prospecting and exploratory work have been carried on at several parts of the company's property, in an endeavor to locate other large bodies of ore.

At Moose River, Renfrew, and Killag, extensive prospecting and development work have been carried on by Mr. M. J. O'Brien. Large mill tests have been taken and crushed, from different leads at these districts, and some very satisfactory values recovered.

At the districts of Tangier, Lake Catcha, and Gold River, development and preparatory work has been carried on though little or no ore has yet been crushed.

Generally speaking the conditions of the underground workings as pertaining to safety are good, and the few places at which conditions could be improved, are where exploratory work only is being done; and the persons in charge at these places have assured me that as soon as actual mining is undertaken, the desired improvements will be made.

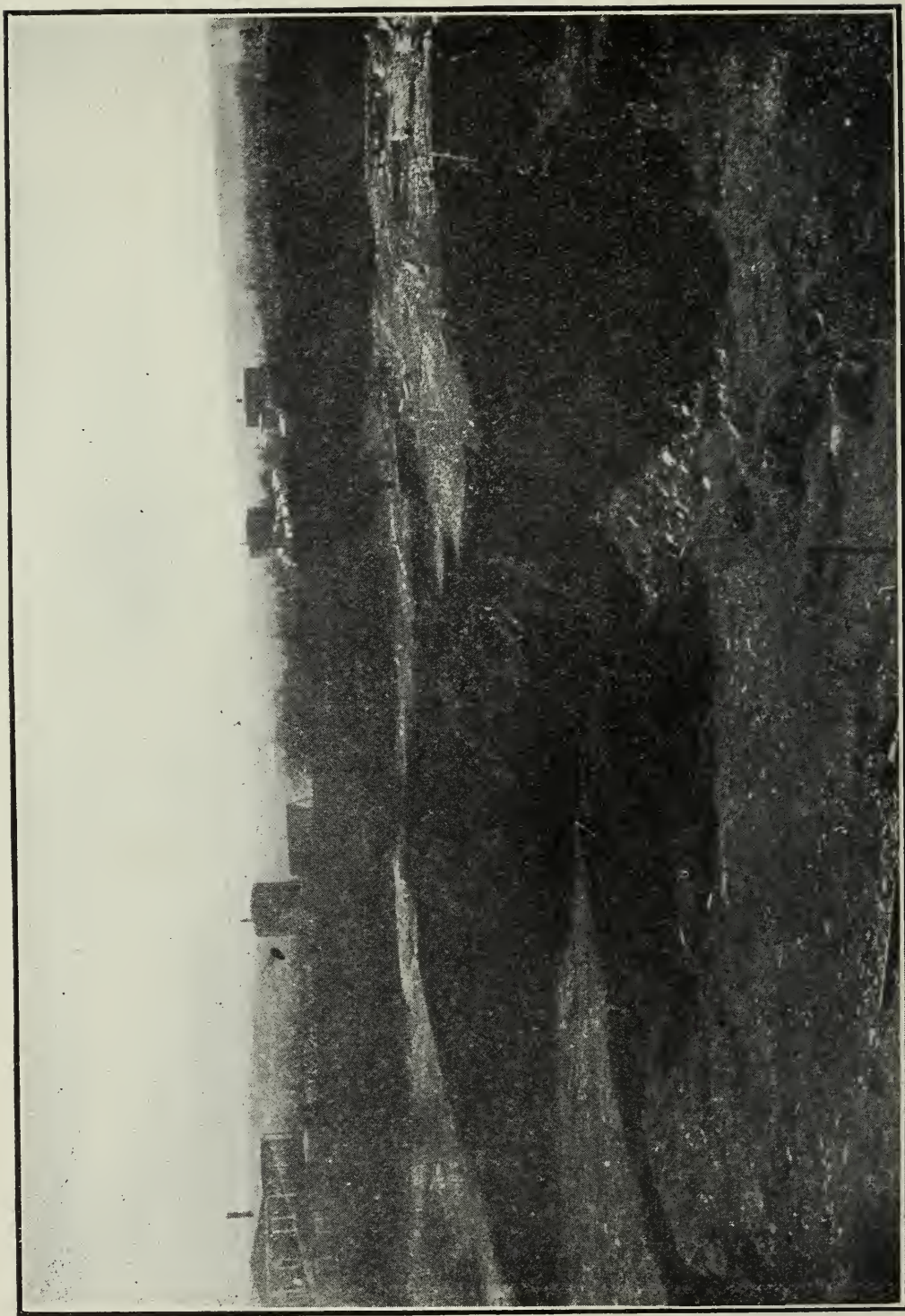
I regret to report that two accidents occurred during the year, both at the Richardson mine at Goldboro, resulting in the death of Simon Clyburn, and serious injury to Hanlin Fanning. Particulars of the accidents will be found in the detailed report on the Richardson Mine.

The number of men employed during the year was 400.

The properties in operation during the year were as follows :—

Ophir Gold Mining Company.....	Brookfield.
Consolidated Mines Company of	
Canada, Ltd.....	Moose River.
M. J. O'Brien, (Touquoy).....	Moose River.
Caribou Gold Mines, Ltd.....	Caribou.
Malcolm McLeod et al.....	Fifteen Mile Stream.
Uniac Mines & Power Co.....	Gold River.
Chester Basin Gold Syndicate.....	Gold River.
Kempt Gold Mining Co.....	Kemptville.
M. J. O'Brien, (Klondyke).....	Killag.
Ponhook Mining Co.....	Molega.
Nova Scotia Gold Mines	Montague.
S. A. Heisler, et al.....	Montague.
Oldham Mining Company.....	Oldham.
Greenough Brothers.....	Oldham.
M. J. O'Brien, (Pictou Develop. Co.).	Renfrew.
Eagle Mining Co., (Dufferin Mines).	Salmon River.
New England Mining Co.....	Tangier.
Dominion Mining Co.....	Tangier.
Great Bras d'Or Gold Mining Co...	Middle River.
Alhambra Mining Co.....	McKay Settlement.
E. E. Fraser	Mooselands.
West Gore Antimony Company	West Gore.
Petpeswick Mining Company.....	Lake Catcha.
Dreadnought Mining Co	Carleton.
H. C. Borden, et al.....	Fifteen Mile Brook.

In addition to the foregoing, tribute work has been carried on at Moose River, Caribou, Gold River, Oldham, Sherbrooke, Goldboro, and Mount Uniacke.



Goldboro. General view of caved ground, North West of old incline shaft, New England Mining Company.

GUYSBORO COUNTY.

Goldboro.

**New England Mining
Company.***Richardson Mine.*

John Warner.....superintendent.
George Myers..... } foreman.
William Myers..... }
Frank McDonald ...surveyor and assayer.

Average number of men employed, 73 in two ten-hour shifts, 35 above ground and 38 below ground.

Production.—From 36,940 tons of ore crushed, 4,063 ounces of gold were recovered, valued at \$77,297.00—being an average recovery of \$2.09 from each ton of ore mined and crushed. Compared with the previous year the production shows a decrease of 4,485 tons crushed, 961 ounces of gold recovered and \$0.21 in the yield a ton.

Of the above production, 715 ounces of gold were recovered from 956 tons of concentrates made and treated by bromo-cyanide process. 529 tons of arsenical concentrates were made and shipped to Swansea, Wales.

Operations.—During the year operations at the Richardson mine proper were confined to the stoping and drawing of the developed and broken ore, from the developed and broken ore bodies, on the 550 and 700 feet levels. No development or prospecting work being carried on other than the driving of a cross-cut south from the vertical shaft at a depth of 170 feet, which cross-cut had been driven at the end of the year a distance of 88 feet and had encountered two belts, one immediately adjoining the shaft and a second at a distance of 86 feet from the shaft. Drifting is to be done on both of these belts.

These belts in general characteristics, closely resemble the Richardson belt and as so far opened measure, No. 1 belt, 6 feet, and No. 2 belt 7 feet in width.

On August 23rd, a serious though not altogether unexpected “cave” took place in the upper portion of the old working on the north side of the fold, the ground caving, extending from what is known as the old incline, around the north leg of the fold for a distance of about 300 feet, and being very similar in extent and

COMPANY.	YEAR.	TONS.	OZ.	VALUE @ \$19.00	YIELD A TON.
Richardson Gold Mining Company.....	1893	5,408	2,054	39,026	\$7 22
" " " "	1894	6,997	1,685	32,015	4 58
" " " "	1895	10,383	1,677	31,863	3 06
" " " "	1896	20,766	2,750	52,250	2 51
" " " "	1897	23,250	2,223	42,237	1 82
" " " "	1898	5,525	550	10,450	1 89
" " " "	1899	16,031	2,149	40,831	2 55
" " " "	1900	23,039	4,681	88,939	3 86
" " " "	1901	24,775	3,374	64,106	2 59
" " " "	1902	29,039	3,459	65,721	2 26
" " " "	1903	10,078	1,210	22,990	2 28
Boston Richardson	1904	no crushing			
" " " "	1905	24,729	2,019	38,361	1 55
" " " "	1906	35,221	4,819	91,561	2 60
" " " "	1907	43,456	6,504	123,576	2 84
" " " "	1908	38,599	4,092	77,748	2 02
New Eng' and Mining Company.....	1909	41,425	5,024	95,456	2 30
" " " "	1910	36,940	4,063	77,297	2 09
Total production 18 years.....		395,661	52,333	994,427	\$2 51

West Block.—The work commenced last year at what is known as the West block was continued until June, when on account of unsatisfactory character of values encountered, work was abandoned.

The extent of the work carried on was as follows:—

From the shaft (85 feet deep) at a depth of 75 feet, levels were driven east 56 feet, and west 85 feet, on what is known as the shaft belt; from the drift east, 6 feet away from the shaft, a cross-cut has been driven north 178 feet, cutting No. 1 belt at a distance, in of 35 feet, No. 2 belt 85 feet, No. 3 belt 112 feet, and No. 4 belt at 160 feet. On No. 1 belt a level was driven east 575 feet; and on No. 4 belt a level was driven west 80 feet.

Mill test of from 10 to 60 tons from these workings, gave from shaft belt, \$1.11 to \$2.90 a ton; From No. 1 belt, north, \$0.17 to \$2.40 a ton, and from No. 4 belt \$1.00 to \$1.25; and in addition to this a large test of 96 tons, taken from the roof of the level on No. 1 belt gave 9.39 ounces of gold or \$1.79 a ton.

Since the above mentioned work was discontinued, Dan McAskill has cleared out the McMillan shaft, on the McMillan property adjoining west, and on what has been designated the shaft belt, and a test taken out of 37 tons 16 cwt. yielded 12 ounces, 11 dwts., being a yield of \$6.40 a ton.

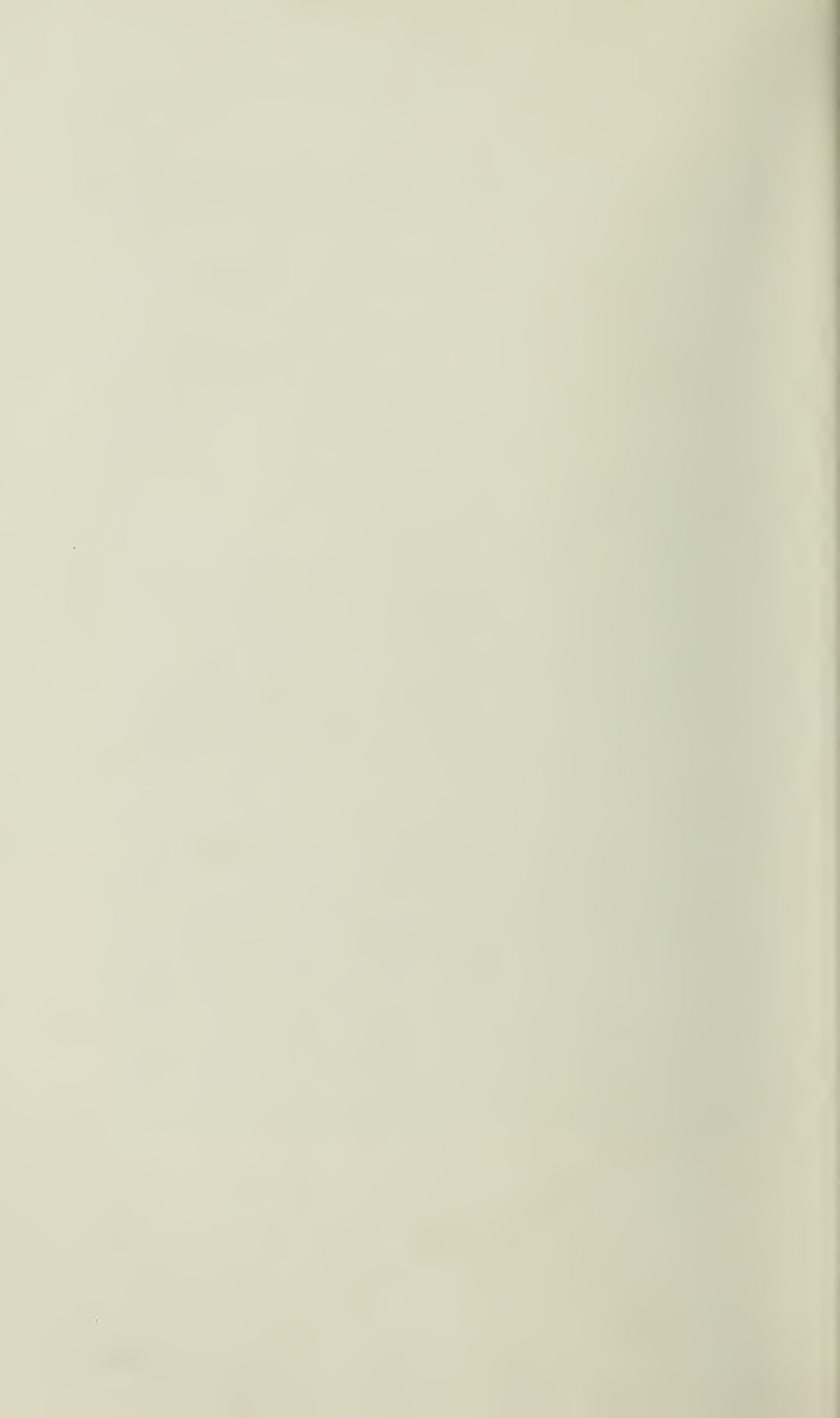
East Block.—In July work was commenced on the sinking of a vertical shaft 202 feet east of the old East Block shaft, to cut what was designated No. 3 belt in the former workings, this belt was cut at a depth of 100 feet, and from this depth the shaft has been continued 40 feet on the belt. Stoping was being carried on at the end of the year but no clean up had been made. In the former work on this belt, carried on from the old east block workings, some very good ore was recovered.

Surface.—The bromo-cyanide plant has been in continuous operation, the re-concentrations of tailings for arsenic recovery has been continued. In September, work was commenced concentrating the old accumulation of tailings for gold extraction, and the making of arsenical concentrates.

At the mill since the "cave" took place, twenty stamps have been operated, day-shift only, crushing the ore recovered from the East Block workings.



Goldboro. Tailing accumulation now being reconcentrated,
New England Mining Company.



For the present, operations are to be continued on the East Block and the belts cut in the cross-cut from the main Richardson vertical shaft, in the hope that new ore bodies of commercial value may be encountered and developed.

Accidents.—Two accidents occurred at the main Richardson mine during the year—one fatal, and one serious.

On May 23rd, at noon, Simeon Clyburn, aged 57, was caught between the bail and cross-head of the skip on incline shaft, receiving injuries causing death three hours after the accident. He with three others, got on the skip at the 700 feet station giving the signal to hoist rock, when the skip arrived at the 400 feet station, the other men jumped off—Clyburn was in the act of getting off when the skip was brought ahead to dump, and was injured as stated above.

On May 25th at 9 o'clock p. m., Hanlin Fanning while in the act of putting a rope through a block, over a raise from the 550 feet level to the 400 feet level, north side, about 600 feet in from 400 feet station, slipped from the shoot on which he was standing falling down the raise feet first, a distance of about 35 feet and landing on the top of the broken ore in the stopes above the 550 feet level, fracturing his left leg in three places, dislocating his hip and sustaining slight scalp wounds. He has since recovered.

Country Harbour.

SYDNEY GOLD MINING CO.

Operations at this mine were discontinued in October of last year, and the property remained idle. At the present time however, steam power plant is being installed and operations are shortly to be resumed.

At the north-eastern section of the district prospecting has been carried on extensively during the summer, and I understand several very promising leads have been opened, on which an endeavour will be made, during the coming year to carry on mining operations.

Goldenville, Sherbrooke.

As last year, the only work carried on in this district, was on tribute by Mr. George A. Hirschfield, and resulted in the recovery of 76 ounces of gold from 169 tons of ore crushed.

HALIFAX COUNTY.

Salmon River.

Eagle Mining Syndicate.	Munroe Archibald manager N. Archibald.....foreman
------------------------------------	---

Production.—55 ounces of gold were recovered from 236 tons of ore minded and crushed.

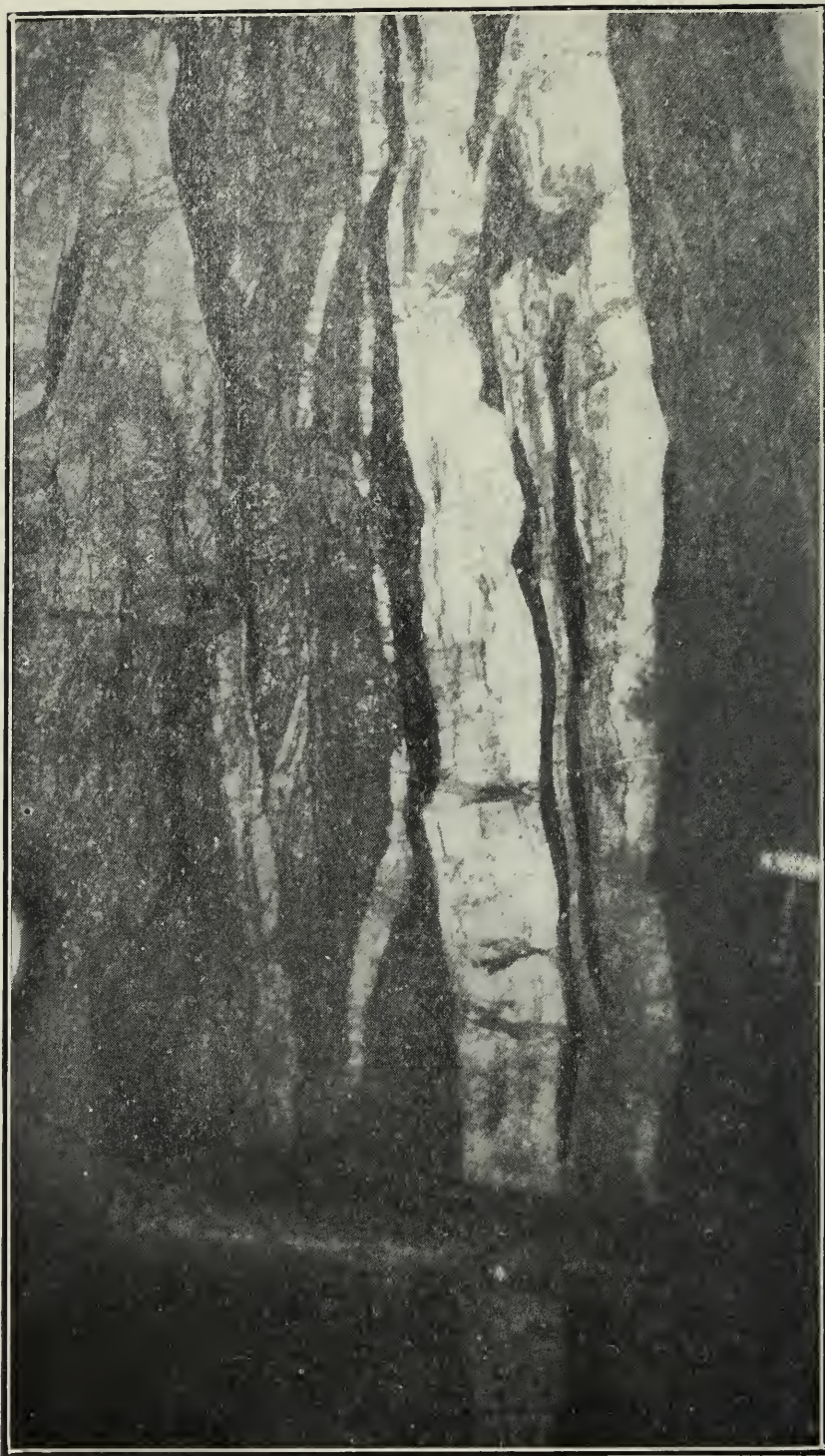
Mining was carried on during the months of October and November on the same lead mentioned in last year's report as being worked. In December work was discontinued and to date has not been resumed.

Killag.

M. J. O'Brien.	M. R. O'Shaughnessy.....manager. John A. Stewart foreman.
-----------------------	---

The work commenced last year was continued, and two tests taken from the old workings on the Klondike lead so-called, yielding 59 ounces from 74 tons of ore crushed.

Difficulty was experienced in handling the water from the mine, a large quantity entering through surface open cuts connected with the underground workings and work was discontinued, with the intention of resuming at a more favourable time of the year : to date, however, nothing further has been done.



Tangier. Kent Lead face of 500 feet level East,
Dominion Mining Company.

Tangier.

Dominion A. E. McPhail manager.
Mining Company P. S. Hopkins assistant “

An average of 47 men has been employed during the year, working double shift.

Production.—3090 tons of ore were mined and crushed which yielded 866 ounces of gold.

Underground.—The 840 feet level east has been extended 155 feet, the face now being in 385 feet east of the shaft, the ore between this level and the 240 feet level above has been stoped out and crushed.

The shaft has been sunk 185 feet and is now 525 feet deep. At a depth of 500 feet, levels have been broken off and driven east 100 feet and west 100 feet.

In the old workings of this mine, the lead immediately west of the shaft had practically petered out, only showing a trace of quartz. In the new work from a depth of 350 feet the lead was found to extend west and from this depth to the total depth attained, a good strong lead was encountered. In the 500 feet level, the lead averages 12 to 14 inches, the belt is composed of slate and quartzite averaging 5 feet. The course of this lead is N. 85° E. Its dip as shown in the lower workings being to the south at an angle of from 60 to 65°.

The ore recovered from the development work both in the shaft and 500 feet levels contained considerable values in coarse gold, and from appearances is higher grade than that mined above the 340 feet level.

It is the intention of the operators, as soon as the 500 feet level is in shape to commence stoping, to continue the sinking of the shaft.

The mine at the present time makes roughly 550 gallons of water an hour which is handled by three pumps—1 Northey, 2½ inch suction, 2 inch discharge at the 500 feet level. 1 Northey, 3 inch suction, 2½ inch discharge at the 340 feet level, and a Fairbanks-Morse 3½ inch suction, 3 inch discharge at the 240 feet level. The latter pump, under ordinary circumstances being operated three hours out of the 24.

Since September 1st, underground operations have been at a standstill on account of scarcity of water, due in part to leaky dam, exceptionally dry summer and large quantity of water used by the lumbering concerns. During September only sufficient power was generated to operate mine pumps. The company expect to be able to re-commence work underground the latter part of October.

Surface.—The hydro-electric plant installed last year has given good satisfaction, its actual operating cost, including repairs, being \$1180, the power used at mine and mill being approximately 250 h. p.

The mill is now undergoing a general overhauling. All woodwork around the batteries, including foundations are being renewed, and a new incline approach is being built. A small assay plant, (gasoline furnace) has been added to the equipment.

At Grand Lake a dam has been constructed for water storage purposes. The following new equipment has been added during the year :—

2 Ingersoll Sargent hammer drills.

2 new 1-ton steel cars.

1 Fairbanks-Morse pump, 7 by 4 by 7.

1 Centrifugal pump at mill, capacity, 75 gallons a minute.

Caribou.

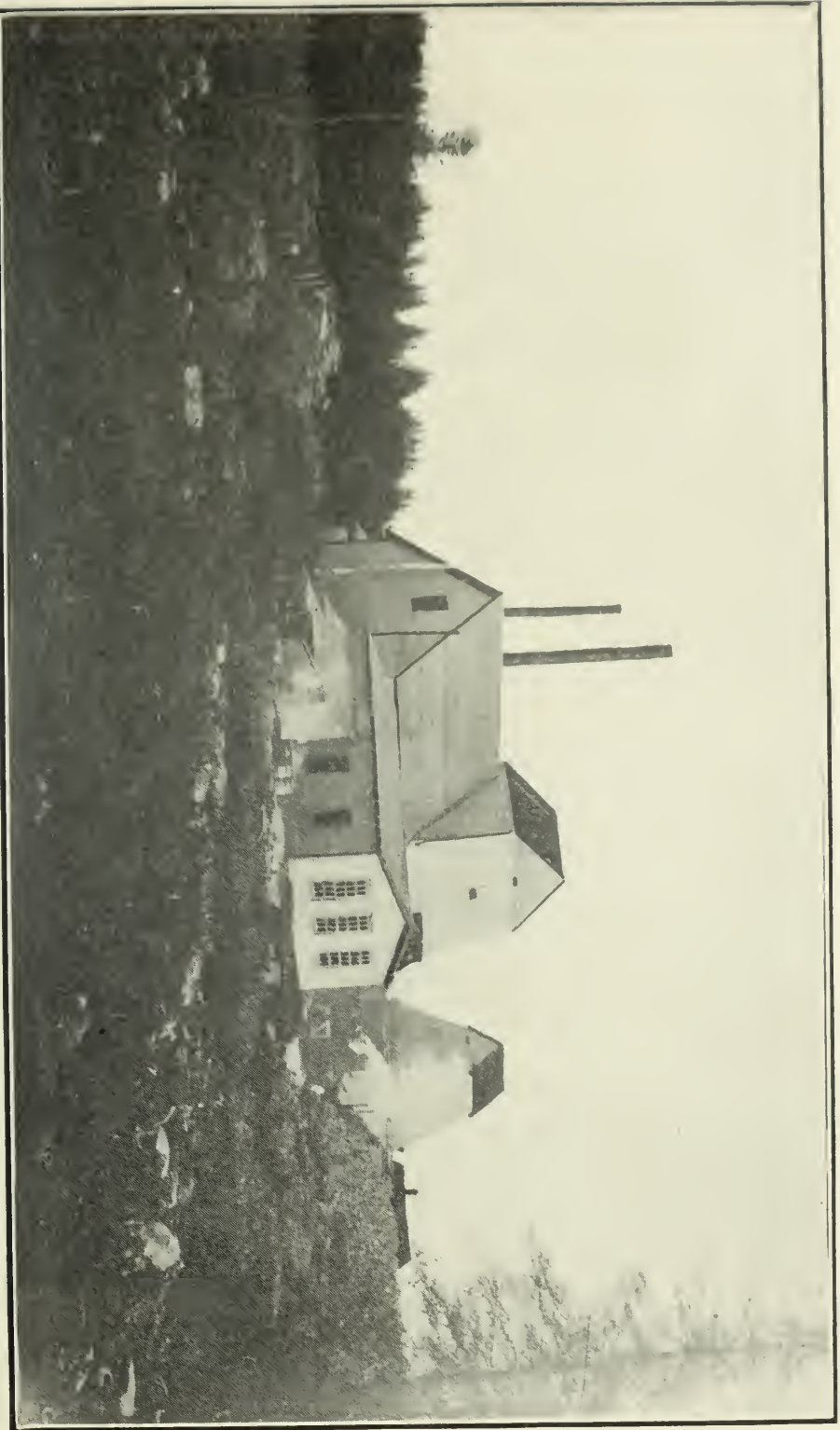
**Caribou Gold
Mines Ltd.**

F. D. Darragh.....manager
George Lawlor.....foreman.

An average of 28 men has been employed during the year.

Production.—From 409 tons of ore crushed, 273 ounces of gold were recovered.

Lake Lode.—With the exception of repair and renewal work to the upper portion of the shaft, injured by the fire, and the plac-



Caribou. Surface equipment Flat Leads and Holman shaft, Caribou Gold Mines, Ltd.

ing of a new rope, no work was done underground at this part of the property, and the shaft has been allowed to fill.

On the surface the boilers, compressor, engine and general equipment have been repaired, and are in condition to resume work.

Flat Leads,—From the new Flat Leads shaft, so-called, at a vertical depth of about 60 feet, drifts have been put in in a north-westerly and south-easterly direction around the legs of the fold. Three leads have been worked from these drifts, and considerable stoping carried on. Connection has been made from the south-eastern section of these workings with the old Flat Leads shaft.

Holman Vertical Shaft,—Work was re-commenced in October, 1909, and the shaft sunk 16 feet, making its present depth 100 feet. From the bottom of this shaft a cross-cut has been driven south 65 feet, and a level driven immediately adjoining the south end of the shaft 50 feet east, and 40 feet west, on what has been named the Ross lead. From the eastern end of this drift a small amount of ore has been stoped and a small pocket of very rich ore encountered—10 tons yielding 100 ounces, 17 dwts of gold.

From this drift 10 feet east of the shaft, a cross-cut has been driven north 55 feet, cutting 9 leads, ranging in width from 1 inch to 8 inches. From none of these, however, have any mill tests been taken. This cross-cut 12 feet north of the level passes through the axis of the anticlinal fold, the veins encountered at this point taking both the north and south dips—on the north side, the dip of the strata is regular, but on the south side after a regular dip for a few feet the strata become very flat conforming with that encountered in the Flat Lead workings, to the south.

Surface,—A new mill building commenced last year has been completed and the stamps and other equipment formerly comprising the new Dixon mill has been set up. An annex has also been built which is being used as a concentrating room and machine shop.

The equipment at this and the Flat Lead workings immediately adjoining, is as follows:—

One 80 h. p. Robb boiler.

One 40 h. p. Truro Foundry boiler, (brick).

- One 20 h. p. Truro Foundry engine, (operating pumps).
 One 30 h. p. Truro Foundry engine, (mill).
 One 4 drill Ingersoll Sargent straight-line compressor.
 One Jackhead pump, (Holman Shaft).
 One Fairbanks Morse, duplex pump 6 by 4 by 6, (Flat Leads Shaft).
 One Northey pump 5½ by 3 by 6, (Flat Leads Shaft).
 Two Wilfley concentrating tables.
 One small upright engine, (operating tables).
 One Rock breaker, ten 1000 pound, stamps.
 Lathe, drill-press and general machine shop fittings.

During the summer, Albert Logan has opened up a lead about one quarter of a mile north-east of the Flat Lead workings, and taken out 26 tons of ore which yielded 50 ounces of gold.

Moose River.

M. J. O'Brien.	M. R. O'Shaughnessy.....manager
<i>Touquoy.</i>	Angus McDonald.....foreman.

An average of six men has been employed.

Production.—From 1136 tons of quartz and slate crushed, 53 ounces of gold were recovered.

During the winter and early summer, intermittent prospecting and exploratory work, was carried on, both underground and on the surface.

Underground.—The Dowell, Taylor, Britannia, and Big North leads were explored and tested by small mill runs.

From the vertical shaft 170 feet level, 24 feet south of the shaft a cross-cut was driven 63 feet in a south-westerly direction.



Moose River. Stillwater Mining Company

At No. 3 shaft on the Dowell belt, 20 feet from the surface, a cross-cut was driven south, 70 feet, and from the Taylor shaft at a depth of 45 feet a cross-cut was driven north, 37 feet.

From the 80 feet level, Vertical shaft a raise of 70 feet was made and the Britannia Lead cut.

At the present time all work has been discontinued and No. 2 Government Diamond Drill is being taken into the district. One or more bore-holes are to be put down for the purpose of determining the rock structure at the axis of the anticlinal fold.

**Consolidated Mines
Company of Canada,
Limited.**

During the first part of the year a small amount of work was done on the Archibald belt and 852 tons of material sent to the mill which yielded 52 ounces of gold. Other than tributary work during the summer no other work has been done.

**Stillwater Gold
Mining Company.**

G. A. Murchey.....manager.

Since August 1st, 8 men have been employed by this company at what has been known as the "Johnson Mine" at a 40 feet shaft sunk two years ago.

The shaft has been sunk 65 feet and is now 105 feet deep. It is on a four feet belt composed of quartzite and slate, and containing roughly 18 inches of crushing material. The hanging wall is quartzite, the structure is, three inches of quartz; containing considerable Iron pyrites, 4 inches soft black slate, 2 inches of quartz showing galena, iron pyrites and calcite, 2 inches of slate, 3 inches of quartz also showing galena, iron pyrites and calcite, 8 inches of quartzite, 1½ inch of quartz, and, slate to foot-wall. The belt dips to the south at an angle of 73°, its course is North 83° west.

About 200 tons of ore has been recovered from the work so far done on this belt, and is stacked immediately west of the shaft, pending the construction of a mill. This ore showed considerable

coarse gold and a test crushing from the belt taken in August 1907, from a shaft 20 feet east of the one worked this year, gave 7 ounces, 6 dwts of gold from 6 tons of ore.

The equipment consists of:

One 40 h. p. Truro Foundry Co., boiler.

One 15 h. p. Hoist.

One Jack-head pump.

One small Northey sinking pump.

A small boiler and engine house has been built north of the shaft. The equipment mentioned above is all old and is soon to be replaced, and a mill built.

Fifteen Mile Stream.

**Fraser and
McLeod.**

M. G. McLeod.....manager.
James McEachern.....foreman.

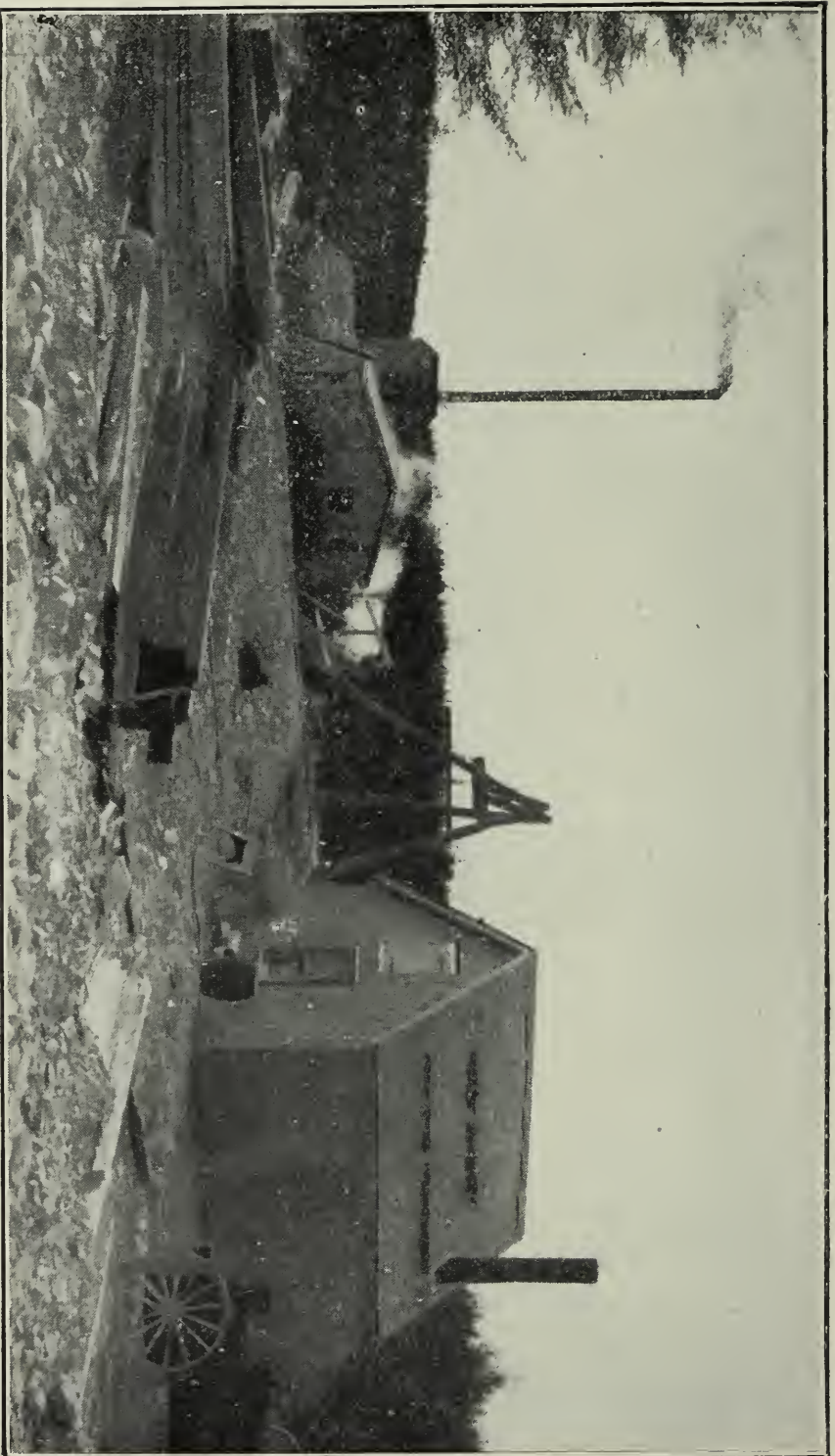
An average of 9 men has been employed, during the greater part of the year.

Production,—180 tons of ore have been mined and crushed yielding 148 ounces of gold.

Mining is being carried on on a quartz lead about 500 feet south-east of the New Egerton crusher. Two shafts have been sunk 43 feet apart, the east shaft being 29 feet deep, and the west shaft 44 feet deep. The lead between these shafts and from the bottom of the west shaft to the surface has been stoped out, and at a depth of 28 feet, a drift has been put in west from the west shaft 21 feet.

The lead varies in size from $\frac{1}{2}$ inch to 10 inches, its course is north 80° east, its dip 70° to the south.

A small roughly constructed boiler-and-engine house, and a shaft-house at the west shaft have been built.



Lake Catcha. Surface equipment, vertical and west shafts, on Lake Lead, Petpeswick Mining Company

The machinery in use consists of:

One 25 h. p. boiler.

One 12 h. p. engine.

One Northey pump.

The ore is crushed at the New Egerton Company's water power mill, on the Fifteen Mile Stream, about one mile west of the mine.

Lake Catcha.

**Petpeswick Mining
Co.**

G. J. Partington.....manager.
Wm. McQuarrie.....foreman.

During the year an average of 28 men has been employed.

Coleman Shaft,—At this shaft on the Coleman Lead, the 460 feet level east was extended 182 feet, and is now in 314 feet. The south cross-cut was extended 80 feet and is now in 156 feet. In addition to the Garden and Whinbound Leads cut in the cross-cut during last year's extension, the Battery twins, South Battery, and mill Leads have been cut. Levels have been driven east on the Battery Twin Lead 30 feet—South Battery Lead 27 feet, and a cross-cut driven from the face of the drift on the South Battery to the Mill Lead, and a drift east on this lead 20 feet.

From the east drift on the Coleman lead, 210 feet east of the shaft, a raise has been made 62 feet, and from the same level, 270 feet east of the shaft a raise has been made 18 feet.

In May, work at the shaft was discontinued, and it has been allowed to fill.

Lake Lead,—During the summer of 1909, a vertical shaft was sunk 150 feet south of the old Anderson shaft, for the purpose of locating this lead below the fault known to exist. This shaft was approximately 132 feet deep, and a cross-cut north from the bottom 43 feet was driven to the lead. A survey of these workings was made, and the site for a new shaft located about 160 feet in a westerly direction, this is now being sunk, and at the end of the year had reached a depth of 80 feet. This shaft is 4 by 8 feet in

the clear and is divided into two compartments timbered with 8 by 8 inch and 6 by 6 inch square sets, 1½ inch and 2 inch plank lagging, 4 feet centers.

West of this Vertical Shaft and on the same lead, above the fault, what is known as the West Anderson Shaft has been cleaned out, enlarged to conform with the size of the Vertical Shaft, and has been sunk an additional 52 feet, and is now 80 feet deep. It is to be continued to the fault immediately above which, levels will be driven and stoping carried on.

What is known as the East Anderson shaft on the same lead below the fault, has also been unwatered, and is being enlarged and re-timbered.

Surface.—The Anderson mill has been thoroughly overhauled and repaired, new battery-frames and foundations have been built, the old batteries and stamps replaced, with those formerly comprising the equipment at the Oxford Mill, self-feeders and a Blake Rock Breaker have also been added to the equipment.

A pipe-line has been laid from the Coleman shaft works to the different shafts on the lake lead, which supplies air for drilling purposes.

Shaft houses have been built at the east and west shafts on the Lake lead. A boiler and engine-house, and a blacksmith shop have been built at the Vertical Shaft.

Oldham.

Oldham Mining Company.	E. H. Brennan.....manager
(Formerly Oldham Sterling Gold Co.)	Edwin McLearn.....foreman.

An average of 50 men has been employed.

Production.—From the Sterling barrel lead 881 tons of ore mined and crushed, yielded 2149 ounces of gold, from the Shaffer Barrel Lead 292 tons of ore were mined and crushed, yielding 267 ounces of gold, and from the Blue lead and other sources 87 tons of ore crushed yielded 65 ounces of gold. The total production by this company from all works being 2,481 ounces of gold from



Lake Catcha. Lake Lead, bottom of East shaft,
Petpeswick Mining Co.

1260 tons of ore crushed, and being a yield of \$37.41 a ton at a valuation of \$19.00 an ounce for gold.

(*Sterling Barrel Lead.*)—The incline shaft on the Sterling barrel lead was sunk during the year 75 feet and is now 1600 feet deep. The ore recovered and crushed from this lead during the year did not yield quite such good values as during the years 1908 and 1909, and at the bottom workings the lead is much larger, averaging nearly 10 inches as compared with 4 inches in the 1909 workings.

On account of the great depth and lower values, work at the bottom has been discontinued since August 1st and levels are now being driven south at a depth of 1200 feet and 1300 feet. The 1200 feet level being now in a distance of 140 feet from the shaft. This level has passed through what has always been considered to be the south limit of the ore-shoot, but an effort is being made to locate other ore shoots on this lead.

East of the old workings, a new incline shaft has been sunk on the Sterling barrel lead east of what has been termed the north fault—this shaft was sunk to a depth of 90 feet and a small quantity of ore stoped and crushed. The values, recovered, however, were unsatisfactory and work has been discontinued.

Shaffer Barrel Lead.—From this lead 292 tons of ore, were mined and crushed, recovered from the continuation of the work carried on last year. In May, work was discontinued and a shaft opened on the Blue lead, a small test was taken out and crushed which gave unsatisfactory results and work was discontinued.

Surface.—No new buildings have been erected or additions to plant made. The equipment used at the different new works belonging to the old equipment, and was moved from place to place.

Tributors.—Greenough Brothers have been tributing during the summer on what is known as the Broussard Lead on the Big Five property, from which they have taken 284 tons of ore which crushed in the Oldham Mining Company's mill yielded 433 ounces of gold. Other tributors working at different parts of the district recovered 20 ounces of gold from 71 tons of ore crushed.

The Oldham Mining Company have raised their terms for crushing tribute-ore, from \$1.50 a ton to \$3.00 a ton, and require at least 10 ton lots. This has discouraged the small tributors and has reduced the amount of quartz taken out by these men.

LUNENBURG COUNTY.

Gold River.

Chester Basin	A. B. Stewart.....manager.
Gold Syndicate.	William Crook.....foreman.

During the months of October, November, and December, 1909, and January and February, 1910, mining was carried on by this Company at the Stewart mine, so-called, and 191 tons of ore crushed yielding 162 ounces of gold. In February the mine was closed, and no work has since been done.

Uniac Mines & Power	R. C. Stewart.....manager.
Company, Limited.	John Lacey.....foreman.

An average of 10 men has been employed.

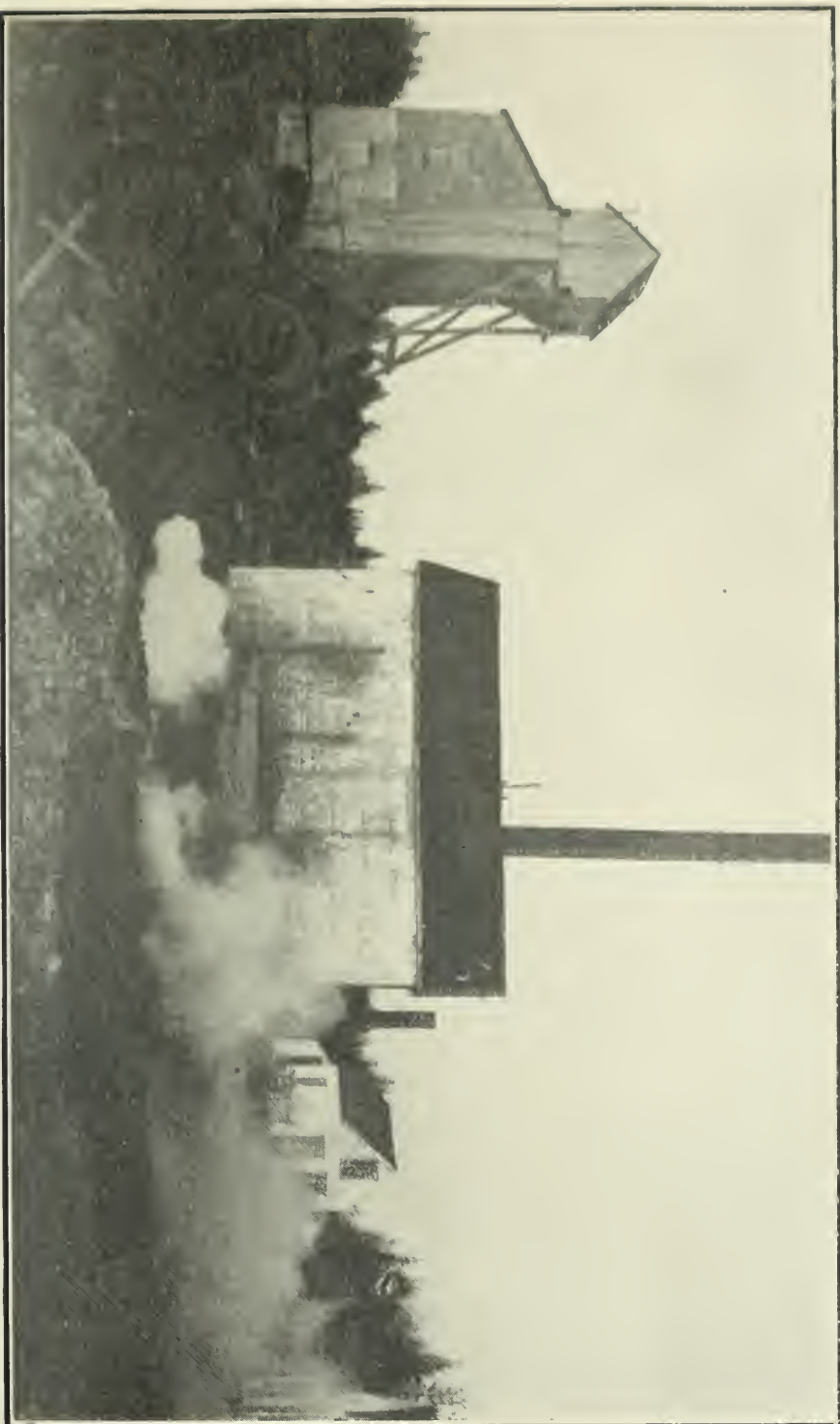
Production.—From 51 tons of ore crushed 58 ounces of gold were recovered.

Underground work has been confined to the Lacey and Vermillion Leads, so-called—at the former lead the shaft commenced last year was sunk this year from a depth of 70 feet to a depth of 100 feet. A shaft-house has been built and a trestle constructed to the mill 380 feet to the west.

At the Vermillion Lead, the east shaft has been cleaned out and sunk 43 feet, making its depth at present 73 feet. At a depth of 59 feet, small stopes were started east and west—the lead in these workings is from 6 to 10 inches in width, in a belt composed of slate and quartzite, 3½ feet wide.

It is the intention of this company to develop a water power on the east branch of Gold River, and until this work has been completed, no extensive mining operations will be undertaken.

North of and adjoining the Chester Basin Gold Syndicate property, a small amount of tribute work has been done, resulting in the recovery of 8 ounces of gold from 8 tons of stuff crushed.



Lake Catcha. Shaitouse and power buildings, "Coleman Shaft," Petpeswick Mining Co.

QUEENS COUNTY.

Brookfield.

The Ophir Gold Mining Co.

G. G. King.....manager.

With the exception of the taking out of 90 tons of ore, which yielded 23 ounces of gold, no work was done in this district.

There is some talk of amalgamating the properties of the Brookfield Mining Company, the North Brookfield Mining Company, and the Ophir Gold Mining Company, and operating on a large scale, but up to the end of the year nothing definite has been done.

Malaga Barrens.

Ponhook Mining Company.

W. J. Prisk.....	manager
Ralph Rockwell }	foremen
Neil McLeod }	

From October to June 15th, an average of 26 men was employed.

Production.—776 tons of ore mined and crushed yielded 326 ounces of gold.

Underground.—As stated in last year's report a fault was encountered at a depth of 274 feet, in sinking the main shaft on the Middle or South Rabbit lead, and on account of the water entering the mine through the broken strata at the fault, sinking was discontinued, and the drift east on the South Rabbit lead was extended for the purpose of determining the extent and effect of this fault, it being found where encountered in the shaft to dip at an angle of about 28° south-westerly.

At a distance of 100 feet east of the cross-cut in the South Rabbit lead drift, this fault was encountered, and it was found to throw to the south about 18 feet. The drift was continued east 194 feet, and two other faults encountered—the first, at 125 feet, throwing the lead to the south 5 feet—the second, at 133 feet, throwing to

the south about 18 inches. These faults both pitch to the southwest at the same angle as the 18 feet fault, and at all three, large quantities of water enter the mine.

The cross-cut south, from the 242 feet level, has been extended 260 feet, the face now being 316 feet south of the level, including the South Rabbit and Slate leads—15 leads were encountered ranging in width from $\frac{1}{2}$ inch to 8 inches—on three of which exploratory work was done, tests taken out and crushed. On the Slate lead, the drifts started last year were continued east 12 feet, and west 11 feet, and a raise driven above the east drift 28 feet.

On the Blue lead, drifts were made east 80 feet and west 20 feet, and a small amount of stoping done.

On the New Year lead, drifts were made east 30 feet, and west 25 feet, and a small amount of ore stoped.

From the South Rabbit lead east of the fault, stoping was carried on in February, March and April.

Almost all leads cut by the cross-cut showed good values but the work done on the Slate lead, Blue lead and New Year Lead did not prove the existence of a payable ore-shoot, and the strata intersected by the cross-cut, particularly on the south end is very much faulted, and like the faulted structure on the Main and South Rabbit leads, lets in a large quantity of water.

In June, all work was discontinued, and an effort is being made to reorganize the company, with increased capital.

Fifteen Mile Brook.

H. C. Borden, et al
Lowe Mine.

E. Percy Brown.....manager.

Production,—530 tons mined and crushed, yielding 92 ounces of gold. This property was taken under option by H. C. Borden, et al, and the Lowe mine unwatered in June, and exploratory work carried on during the summer, on and above the 75 feet level. This level was extended east 140 feet, and is now in 260 feet. Small blocks of ore were taken out immediately adjoining both the east and west ends of stoping done by Crowe, about four

years ago, and a small block of ore was taken out near the face of and above the 75 feet level.

The lead being worked is a fissure, its course is N. 80° E. dipping to the south at an angle of from 80° to 85°. The strata dipping north 65° to 75°, the course being north 60° east.

In the shaft at a depth of 30 feet, a fault was encountered, pitching to the east at an angle of about 22°. Above the fault the lead is from 6 to 12 inches, much rusted and full of seams, giving a crushing width of about 2 feet of quartz and slate. Below the fault, the character of the lead changes to a hard tight lead of from 1 to 4 inches in width.

The work done during the summer was with a view to proving and developing an ore shoot lying above and dipping with fault—the former work indicating this to be the case, as from the ore recovered from the shaft above the fault and the former stoping done immediately above the fault, where encountered in the 75 feet level, good values were recovered, but up to the end of the year although fair values have been recovered from some portions of the lead mined, the existence of a regular ore shoot has not been proved.

The shaft on this property is 150 feet deep, with, in addition to the stopes above the 75 feet level, quite extensive stopes, both east and west of the shaft to the bottom.

The mill and other surface equipment has been overhauled and put in good running order.

Yarmouth County.

Carleton and Kemptville.

At Carleton the United Finance Company has re-opened one of the old mines formerly operated by the Carleton Gold Mining Company. Seven men have been employed since August, putting the surface equipment in repair, and unwatering the mine, the shaft of which is 180 feet deep. A test is now being taken out which will be crushed at the Carleton Mill.

At Kemptville, Mr. E. F. Walton has mined and crushed 52 tons of ore which yielded 52 ounces of gold—this was mined from different shallow pits, and no work has been done at any depth below ground.

HANTS COUNTY.

Renfrew.

M. J. O'Brien.
(Pictou Development
Co. Property).

M. R. O'Shaughnessy.....manager
Vincent O'Shaughnessy...superintendent

An average of 42 men has been employed.

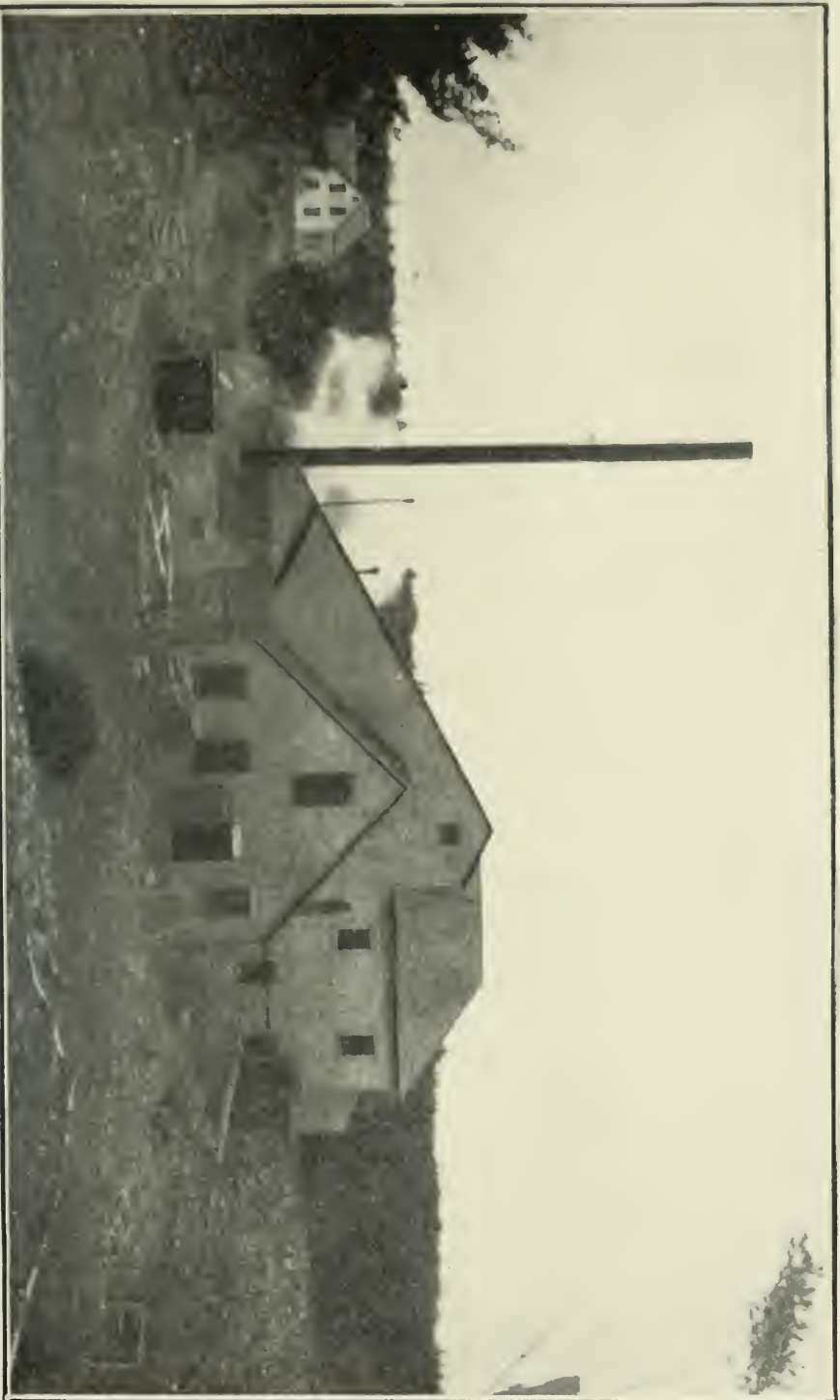
Production.—From 1834 tons of stuff crushed, 624 ounces of gold were recovered.

In the spring of 1908 the property in this district formerly known as the Pictou Development Company's property, and later as the Eagle Mining Company property, was sold to J. Ross Archibald and by him transferred to Evan Thompson. The property remained idle during the summer but last fall operations were commenced by M. J. O'Brien, under option from Mr. Thompson, and work has been steadily carried on ever since at different old shafts.

Thompson and Jubilee Mines.—These shafts were unwatered and a quantity of material from the scaffolds taken out and crushed which yielded very fair returns. At the Jubilee mine, the 400 feet level east was extended 28 feet following the break encountered in the former work, and from this level 25 feet east of the break a cross-cut was driven south at right angles to the level, 22 feet. From the 200 feet level, 60 feet east of the shaft, a cross-cut was driven north, 14 feet. A number of tests were taken out from the new ground opened up by this work, but no pay-ore encountered and work at these shafts has been discontinued for the present.

Empress Shaft.—This shaft on the Foundation lead was unwatered, and mill tests taken from the Foundation, Preeper and, McLeod leads both east and west of the shaft. These tests gave from \$0.50 to \$2.25 a ton, the quantity crushed being 200 tons from the Preeper, 100 tons from the Foundation, and 150 tons from the McLeod leads. The shaft is now full of water.

McLeod Lead.—The 320 feet shaft known as the "Chummy" shaft has been unwatered and sunk 67 feet, its depth now being 387 feet. At a depth of 360 feet, levels have been driven, east 140 feet and west 100 feet, chutes have been put in over the east drift



Renfrew Shafthouse and power building Foundation Lead, M. J. O'Brien Property



Renfrew. McLeod Lead, face of 360 feet level, West.
M. J. O'Brien property

and stoping is being carried on. Over the west drift, chutes are being put in, and stoping is about to be commenced. Immediately east of the shaft, a reservoir is being made to take the water from this level and preparations are being made to continue the sinking of the shaft.

The lead as so far opened up by the present operations at this shaft, is from 4 to 8 inches in width in a hard banded slate and quartzite belt, its course is approximately east and west and the dip to the south at an angle of 50 degrees. The gold recovered has been principally in the form of nuggets very little fine gold being recovered.

In the west workings the lead is split in two sections and contains considerable copper in the form of Chalcopyrite.

Sim Lead.—What has been known as the 110 feet shaft on this lead has been cleaned out and sunk 42 feet, making its present depth 152 feet. Drifts are about to be started east and west from the bottom.

This lead is from 12 to 20 inches in width and is in a banded belt of slate and quartzite 3 feet 6 inches wide, its course is about east and west and the dip to the south at an angle of 52 degrees.

Surface.—Air for the drills at the McLeod and Sim Lead works is supplied by the compressor at the Foundation works, power for hoisting and pumping at the McLeod is generated with a 40 h. p. boiler at that shaft and at the Sim lead by a small 10 to 15 h. p. boiler.

A shaft-house and power building has been erected at the McLeod works and a small power building at the Sim Lead works.

The only new equipment added has been 3 Murphy stoping drills and one Rand No. 42 piston drill.

The ore recovered from the different works is hauled by horse and team to the water power crusher on the Renfrew brook about $\frac{1}{2}$ mile south of the Empress shaft.

Coal and wood are both being used to generate power, the coal being hauled from Enfield Station, a distance of 7 miles, but it is purposed if the values encountered are satisfactory to develop the water power on the Renfrew brook.

VICTORIA COUNTY.

Middle River.

**Great Bras d'or
Gold Mining Co.**

D. Patriquin.....superintendent

From October 1st, 1909 to April 30th, an average of 20 men was employed.

Production from 336 tons of ore crushed, 38 ounces of gold were recovered.

During the winter and early spring, mining operations were carried on, on a small scale and principally confined to the inclined shaft which was continued to a depth of 100 feet, and at 50 feet, levels were driven east 16 feet, and west 54 feet, and at 80 feet levels were driven east 30 feet and west 40 feet.

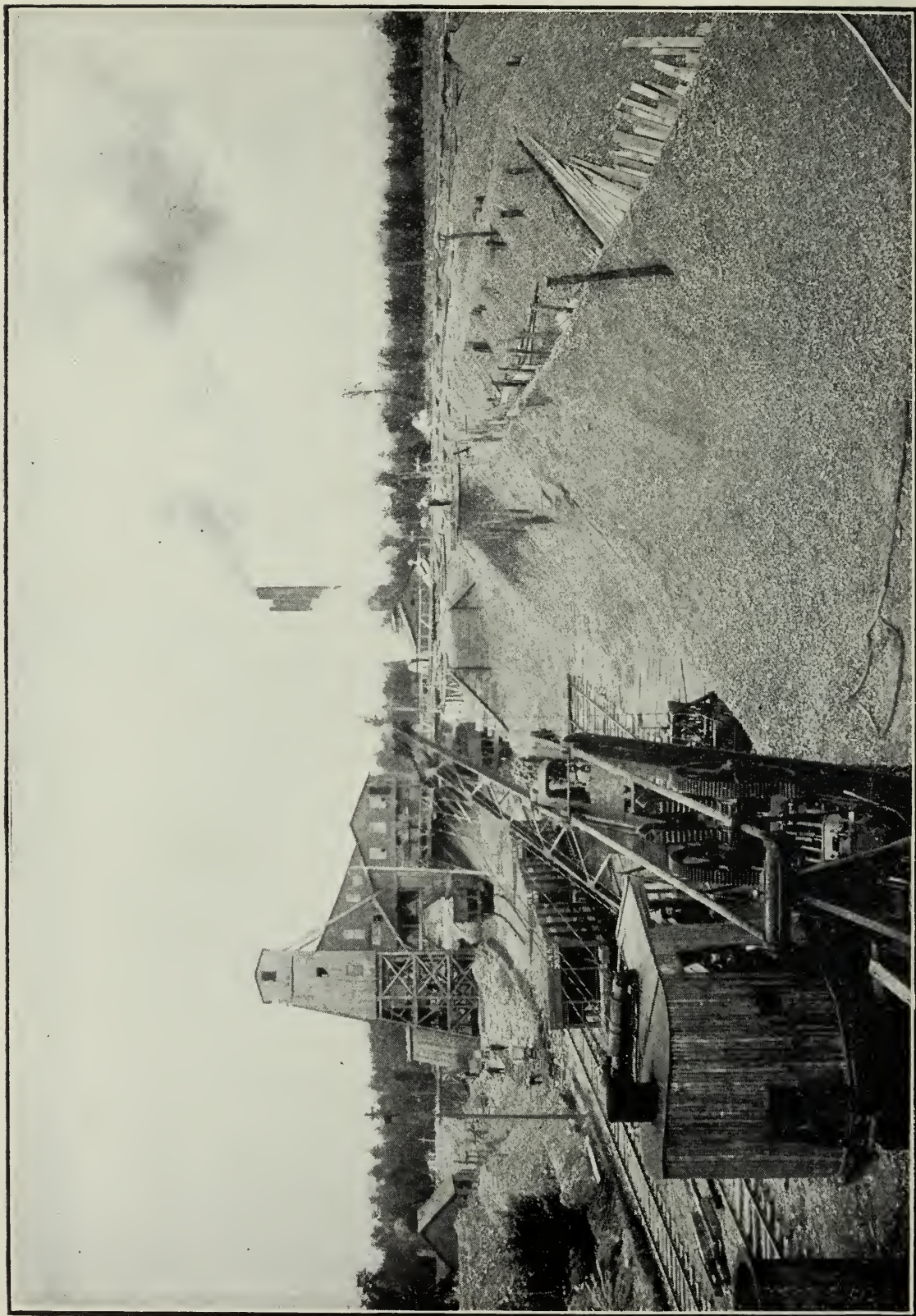
Since May 1st, one man only has been employed.

Other Districts.

At Montague, T. N. Baker has been working for the Nova Scotia Gold Mines Co., and from different openings has taken out 228 tons of ore which yielded 135 ounces of gold. At this same district S. A. Heisler mined and crushed 76 tons of ore which yielded 26 ounces of gold.

At Mooseland, Tangier, E. E. Fraser mined and crushed 25 tons of ore which yielded 8 ounces of gold.

At Mount Uniacke, tribute work resulted in the recovery of 36 ounces of gold from 62 tons of ore crushed.



Torbrook. Surface equipment and stock pile, West shaft, Canada Iron Corporation, Ltd.

IRON.

During the year 52,640 tons of iron ore were mined in the province, an increase of 40,640 tons over the amount mined last year and 705,351 tons of iron ore were imported into the province by the Nova Scotia Steel and Coal Company, and the Dominion Iron and Steel Company of which 680,474 tons came from Newfoundland, 16,347 tons from the United States, 5,976 tons from Spain, 1,742 tons from Ontario and 814 tons from Sweden.

The iron ore mined in the province was all from the mines of the Canada Iron Corporation, Limited, at Torbrook.

At Arisaig, Antigonish County, the Arisaig Iron Company have carried on extensive prospecting and development work, but have not yet taken out any ore.

The industry has employed at Torbrook and Arisaig a total of 150 men.

Torbrook.

The Canada Iron Corporation Limited.	D. L. McLeod.....	superintendent.
	S. M. Archibald }	
	J. M. Hopkins }	foremen.
	N. Ackles }	

An average of 130 men has been employed, during the year.

Production.—*52,640 tons of iron ore have been mined and two cargoes of *4928 tons and *6272 tons shipped to Chester, Pa., and Glasgow, Scotland, respectively. The balance of the ore mined is on the stock pile at the mines and *8400 tons in the ore pockets at Port Wade.

Underground.—During the year just ended work has been principally confined to extending the different levels and the mining of the ore blocked out by the development work done in the early part of this and previous years.

The ore mined was from the stopes over levels, 1, 2 and 3 east and west sides, and 4 and 5, west sides.

*Net tons.

The lengths of the different levels and extension during the year are as follows :

No.	Depth from surface	Direction	Length Sept. 30, '09	Driven during year	Present Length.
	FEET		FEET	FEET	FEET
1	76	East	160	320	480
1	76	West	313	...	313
2	159	East	406	292	698
2	159	West	359	...	359
3	259	East	157	573	730
3	259	West	144	206	350
4	359	East	30	441	471
4	359	West	30	288	318
5	469	East	25	100	125
5	469	West	25	275	300

On the shell vein the drifts from the east cross-cut No. 2 level have been extended east 35 feet and west 60 feet, and from the Number 5 level cross-cut to the shell vein, levels have been driven east 25 feet and west 25 feet.

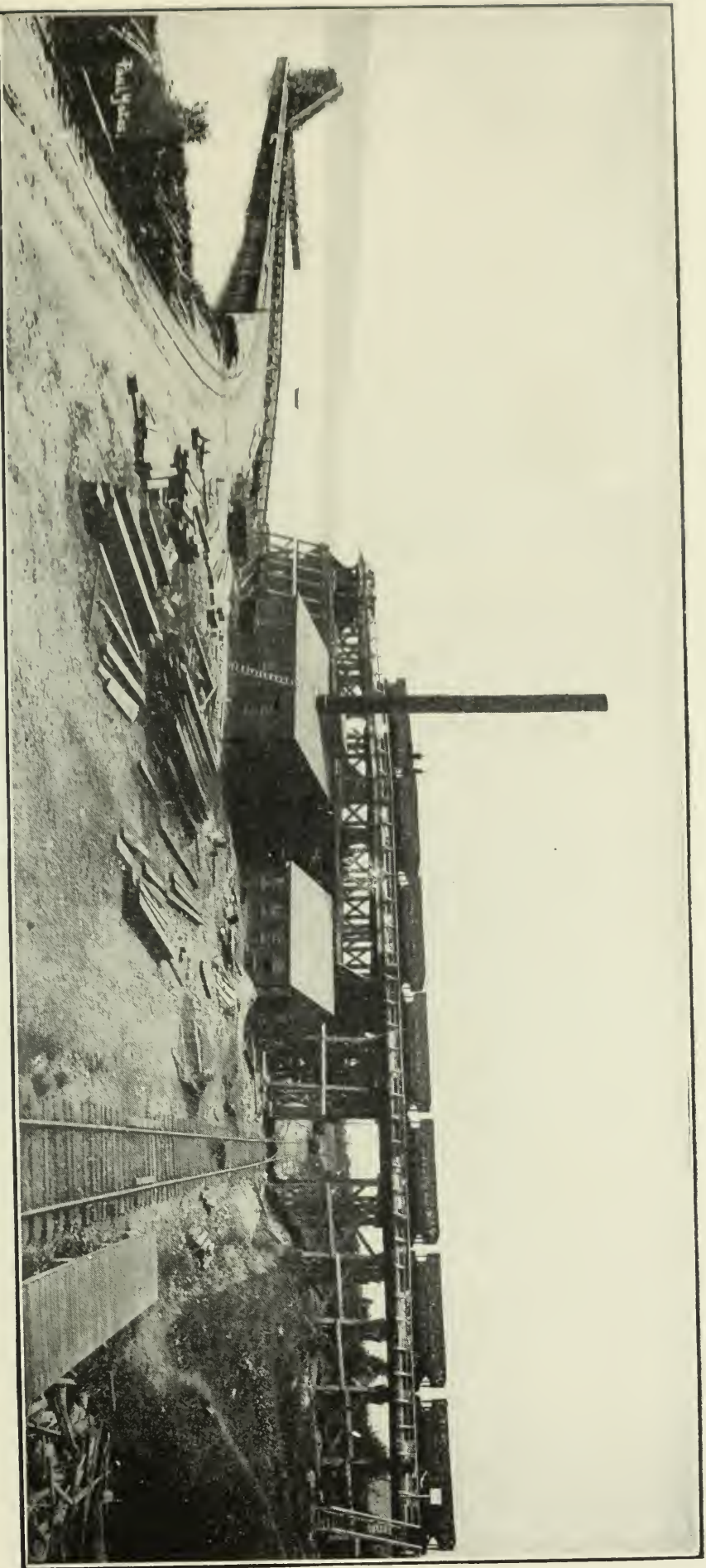
The east air shaft has been sunk during the year 250 feet, and connection made with Number 4 level. The west air-shaft has been sunk 109 feet and is now 280 feet deep.

Surface.—The ore from the mine is hoisted by two three-ton skips and passes directly to two Gaetz gyratory rock-breakers placed at the top of the head-frame—it is here reduced to a maximum size of 3 inches and passes to Zimmer picking belts and Zimmer conveyors, thence to ore pockets and stock pile.

At the mines the only buildings constructed were two magazines (brick) one for storing, and one for immediate use.

In the mine 24 Murphy stoping drills, 2 Murphy tunnellers and 1 Murphy sinker have been added to the equipment.

At Port Wade, main ore pockets of 7,000 (long) tons capacity have been built and at head of the pier a loading pocket of 400 (long) tons capacity—the ore from the main pocket to the loading pocket is moved by a 1,000 feet belt conveyor.



Port Wade. Ore pockets and shipping pier, Canada Iron Corporation, Ltd.

The power plant here consists of two 150 h. p. Matheson boilers and one 250 h. p. Matheson engine.

During the summer two cargoes of ore have been shipped totaling 11,200 tons containing about 48% iron, the company states that the iron market during the year has been very dull and prices low and that they have therefore not mined or shipped to near their full capacity.

ARISAIG.

Antigonish County.

**Arisaig Iron
Company.**

George E. Corbett.....manager.

In September, 1906, the Arisaig Iron Company commenced prospecting in this district and have continued this work every summer and fall since, and during the last season on a very much larger scale employing an average of 20 men since June 1st.

The area over which prospecting has been carried on is situated about 1 ½ miles south of the main road from Malignant Cove to Arisaig and extending westerly about two miles from the east side of the east branch of Doctor's brook.

To date, the present operators have sunk and run 50 to 60 pits and trenches on four veins of hematite ore designated O.—1,—2,—and 3. Generally speaking Number 2 vein is 65 feet south of Number 1 vein; Number 3 vein is 35 feet south of Number 2 vein, and Number O vein is about 100 feet north of Number 1 vein.

These veins where cut are from 3 to 7 feet in width and in general their course is north 70° east.

Number 2 vein in size and general character is stated to be the most promising and is the ore on which the greater amount of work has so far been done.

In addition to the pits and trenches a tunnel has been commenced at the western end of the property for the purpose of

cutting Number 2 vein. At the date of my visit the tunnel had been driven south a distance of 145 feet.

The present operators do not purpose to mine and ship ore—the intention is to open up the property for the purpose of selling. No. shipments for test have as yet been made, but they state the results of several assays from the different veins gave from 40 to 55% of Iron.

AURIFEROUS ANTIMONY.

The mines at West Gore have not been operated during the year and the only ore shipped was that recovered by the West Gore Antimony Company at West Gore, from the milling of 5,565 tons of dump which gave 203 tons, 722 cwt. of concentrates.

WEST GORE.

**West Gore Antimony
Co. formerly Domin-
ion Antimony Co.**

A. Gordon Plews.....manager.

An average of 28 men has been employed.

The concentrating mill on this property completed in 1908, was operated for a short time during the month of September, 1909, and then closed down for alterations and repairs until December 14th, and since that date has been in continuous operation and has treated 5566 tons of dump, which yielded 203 tons of concentrates.

A description of the equipment in this mill, together with the flow sheet, is contained in the 1907 report, and while several changes have been made, the general mill practice remains the same.



West Gore Antimony Co's. concentrating mill, West Gore.

It was found that one Huntington mill was insufficient to handle the ore, and in case of accident it necessitated the closing down of the whole plant. Another mill of the same make has therefore been placed. The other additions to equipment were :—

3 Frue vanners.

1 Wilfley concentrating table.

1 Ludwig vanner.

The Wilfley table re-dresses the intermediate concentrates, and the Ludwig vanner re-concentrates slimes.

The portion of the dump so far treated has contained a very low percentage of ore, and the recovery of concentrates has therefore been low approximately 70%.

The concentrates are shipped to the St. Helen's Smelting Company, Liverpool, England.

COPPER.

Other than prospecting work at different parts of the province no operations were carried on.

At Lochaber, the Lake Copper Company continued their work up to April 1st employing to that date an average of 15 men; but since that practically no work has been done. Their operations were principally directed to an 80 feet shaft about 300 feet west of their main shaft. This shaft has been enlarged and sunk an additional 100 feet, making its present depth 180 feet, and it cuts the belt at a depth of 178 feet. The equipment used is that formerly at No. 1 or the main shaft, and is insufficient to continue this work: operations have been temporarily discontinued until additional equipment is acquired.

LEAD-SILVER.

Prospecting and development work for this mineral have been carried on by the King Edward Exploration, Smelting, Refining and Milling Company of Cape Breton, Ltd., at Rear Boisdale, Cape Breton County, and by Bessie Dunbrack et al at Musquodoboit.

At Rear Boisdale the work done consisted of surface prospecting and the continuation of underground work described in last year's report. I understand that work has lately been discontinued.

At Musquodoboit an average of 5 men has been employed principally engaged in sinking surface pits. The only rock work done being the extending of the south drift from the bottom of the 100 feet shaft 285 feet, making a total length of 300 feet.

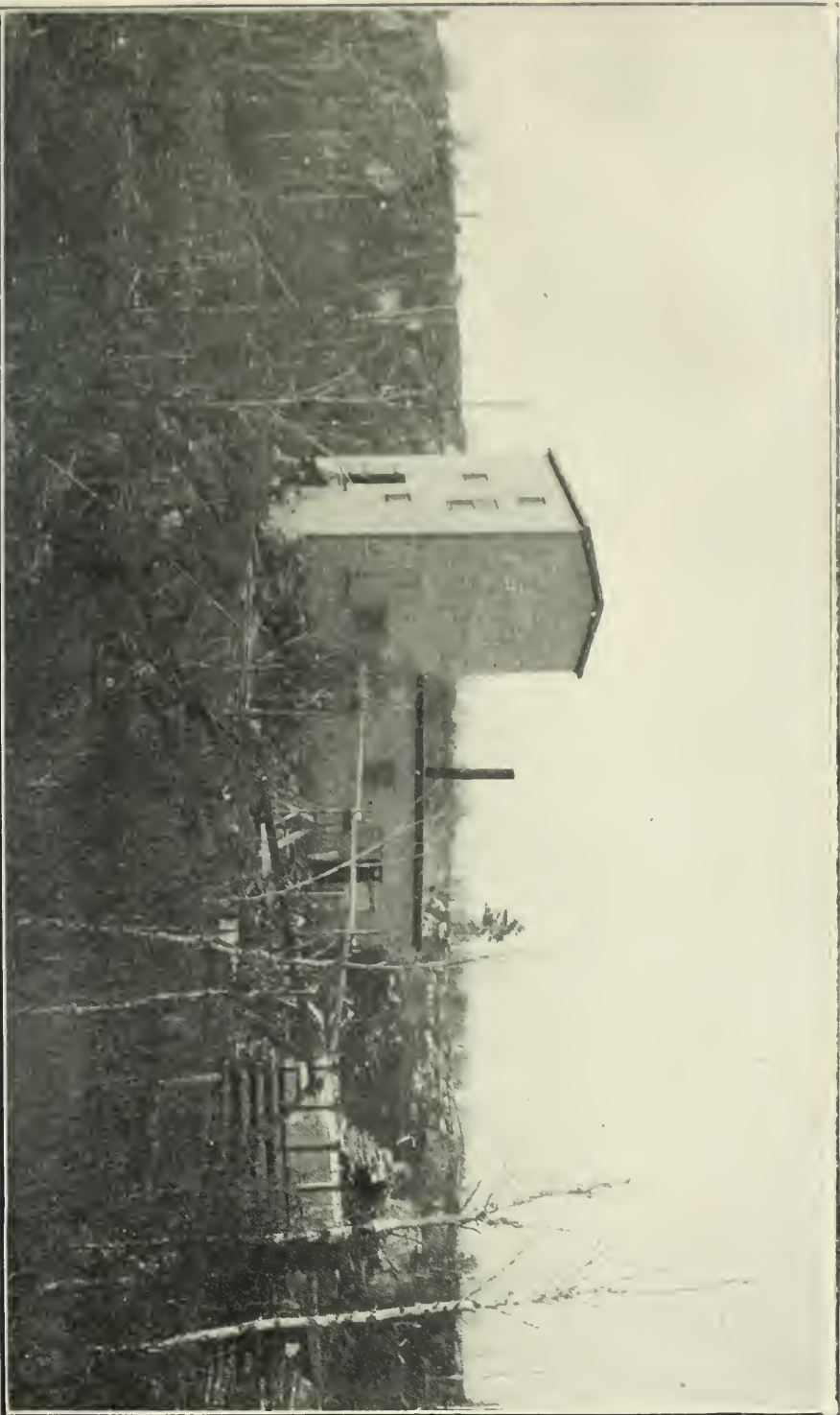
MANGANESE.

At New Ross, the Nova Scotia Manganese Company, Dr. W. H. Cain, Manager, commenced work about the middle of April, at a 30 feet shaft sunk in 1908 by E. Turner. They have continued the sinking of the shaft, its present depth being 100 feet, and have recovered from this work 25 tons of high grade ore.

Mr. E. R. Fairbault, in the summary report of the Geological Survey branch of the Department of Mines, for the year 1908, (page 154) referring to this deposit says:—

“E. Turner of Mill Road, has opened an important vein of Manganese in the granite two miles north of Dr. Cains Manganese mine, on the height of land between Wallaback and Dean—and—Chapter Lakes. Two pits have been sunk, one of which is 30 feet deep, and the other 25 feet deep. The vein is vertical and has been traced by float about 1,000 feet; its course lies about north 70° east. It is of much the same character as Dr. Cain's vein; at the surface it is composed chiefly of Botrvoidal hematite, with some ochre and a little Pyrolusite. At a depth of 26 feet the Pyrolusite begins to increase, and at 30 feet the vein is 14 inches thick and composed of five inches of good Manganese ore and 9 inches of mixed Iron oxide and crushed Pyrolusite and granite. The country rock is a light reddish grey porphyritic biotite somewhat crushed along the walls of the vein. Drift-manganese has

New Ko.s. Surface equipment, Nova Scotia Manganese Co.





Scheelite, Moose River. Looking East along line of development on "New Vein"

been found in many places in this section of the country, lying between Wallaback, Dean-and-Chapter, Porcupine, and Baptist Lakes, as much as five barrels having been found in one spot. This would indicate the presence of several veins not yet discovered, and should encourage prospecting in this promising field."

From a depth of 30 feet to the depth attained, the granite on both sides of the vein for a total width of about four feet is altered, the feldspar being of a hardness similar to clay. The vein matter in the late workings, contains in addition to manganese, hematite, etc., considerable limonite, occurring in lenticular bodies. The average width of manganese ore encountered would be about 10 inches. The vein from a depth of 30 feet to a depth of 100 feet, dips to the south at an angle of from 65 to 70 degrees.

On the surface, shaft-house and power-building, and cook-house have been constructed. The equipment in use at the mine consists of one 20 h. p. boiler, one 15 h. p. engine, one small belt-driven friction hoist, one Jackhead pump, and two hand-jigs.

TIN.

In the district of New Ross on the west bank of a small brook flowing between Wallaback and Harris Lakes, Mr. A. L. McCallum et al has commenced the sinking of a shaft on a quartz vein in granite, carrying tin in the form of cassiterite and stannite. The vein so far encountered averages about 2 feet; the shaft has now reached a depth of 25 feet. Work is being continued.

TUNGSTEN.

At Scheelite, (So named on account of the ore discovered) Moose River, since March 4th, continuous operations have been carried on in connection with the Tungsten bearing veins, discovered by John A. Reynolds and W. A. Currie, in the fall of 1907, and an average of 40 men has been employed. Mr. A. A. Hayward is manager, with H. J. McAskill as foreman.

This property is situated on the Stillwater Brook, a tributary of Fish River, and is distant about two miles and a half in a

westerly direction, from the center of Moose River Gold Mines. The property over which work has been carried on extends east of the Stillwater Brook about 750 feet, and west of the Stillwater Brook about 300 feet, and north and south across the formation about 200 feet.

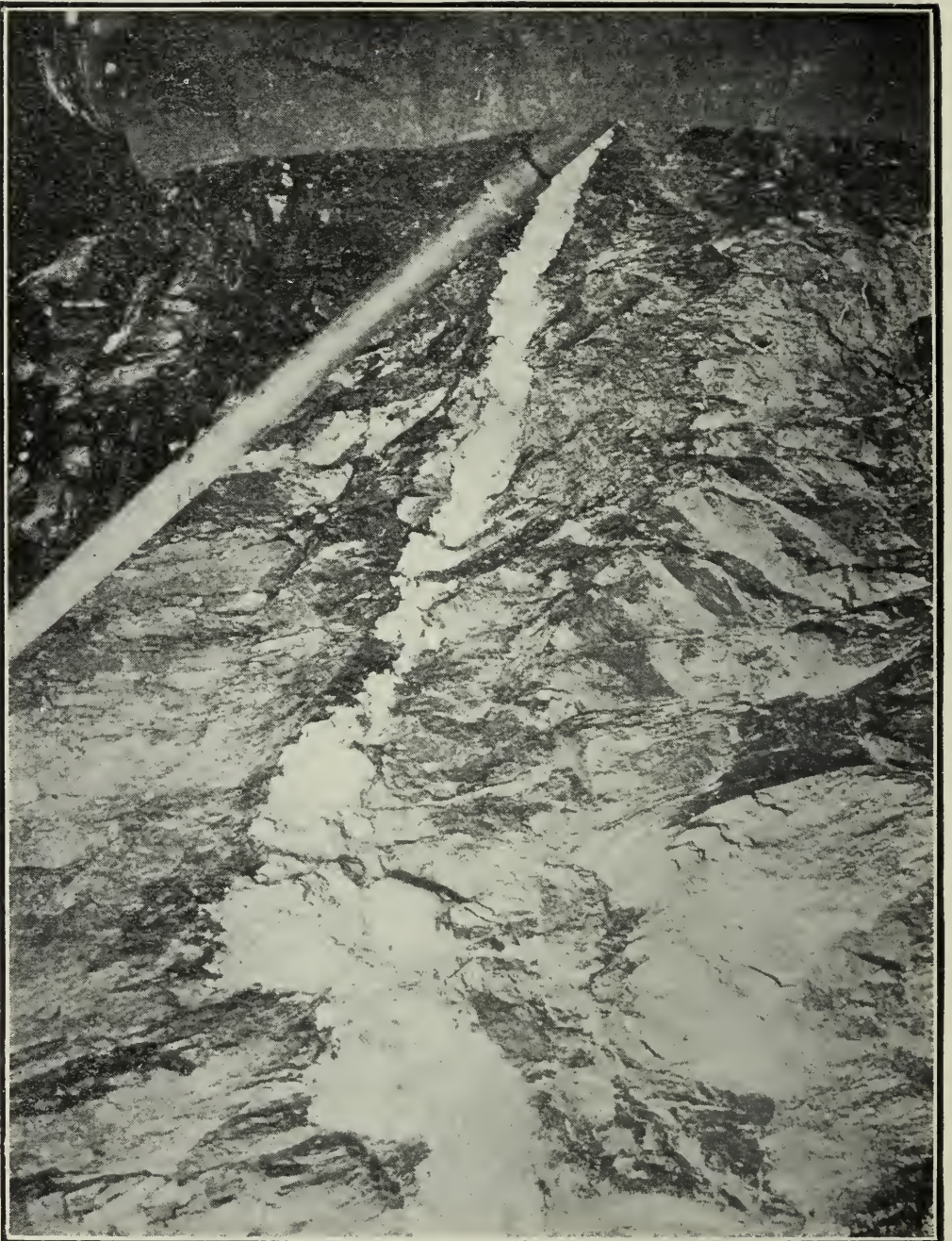
The veins so far discovered are interbedded veins and coincide with the bedding planes and occur in thin layers of slate interstratified with beds of quartzite. Mr. Faribault in the summary report of the Geological Survey branch of the Department of Mines for the year 1909, referring to this property states :

“ The width of the veins vary from the fraction of an inch to 24 inches, but few of them, and this is particularly true of those showing the most scheelite, average more than four inches. They are generally quite uniform in width, though some of them show enlargements and rolls, so common in the gold-bearing veins. These rolls plunge westward at low angles, which correspond with the pitch of the anticline, also approximately with the line of intersection of the cleavage and bedding planes, and may indicate, as in the case of gold veins, the general pitch of the ore-shoots.

The vein matter consists essentially of quartz, scheelite, and mispickel in varying proportion. The quartz is mostly translucent, white and glassy, and quite different from the gold-bearing veins of the province. The scheelite is honey yellow to pale reddish-brown in colour, is coarsely crystalline, and shows distinct cleavage. It often constitutes a large part of the smaller veins ; in some of which it occurs in a series of lenses or rolls. In the larger veins the scheelite is mainly confined to the outer part where it occurs in thin, irregular patches.

The mispickel is always massive and varies very much in quantity in the different veins. In one or two of the viens it is the predominant constituent ; but, generally, it is less abundant than the scheelite, and sometimes is scarcely visible. It also occurs abundantly in the slate adjoining the veins, in very minute well formed crystals, commonly surrounded by a narrow zone of white mica, with scales at right angles to the surface of the mispickel.”

The strata is folded in three main anticlines and two synclines, the distance from the axis of the north anticline to the axes of the south anticline being approximately 600 feet. The axis of the middle anticline has a general east and west course, and



Sheelite, Moose River. Showing vein on which incline shaft is being sunk.

pitches west at a low angle. A short distance south of the axis of the middle anticline the formation is again folded making a small anticline, the axis of which is distant from the axis of the middle anticline, approximately 40 feet. On the west side of the Stillwater Brook, a horizontal fault has been located causing a displacement of approximately 170 feet. This fault crossing the formation roughly north 45° east.

The veins so far opened up are on the south dip of the middle anticline and their dip almost vertical, excepting of course where encountered between the axis of the middle anticlinal fold, and the minor fold to the south.

Early work was directed to the fixing up of the road from Moose River Mines, the building of camps and other preparatory work, and it was not until May 1st that actual prospecting and development work was commenced. To date, nine shafts have been sunk, four on the west side of Stillwater Brook, and five on the east side of the brook. These shafts range in depth from 30 to 120 feet, and explore six scheelite-bearing veins. Shafts No. 2, 7, and 8 are on what has been termed the "new vein," and are east of the Stillwater Brook. The distance between Shaft No. 2 and Shaft No. 7 is approximately 300 feet, and recent work at these shafts would indicate the existence of an ore-shoot roughly 30 feet in vertical depth pitching west at an angle of about 12 degrees, and extending probably from a distance east of No. 7. shaft 150 feet, westerly to the fault west of Stillwater Brook.

North of the "new vein" and east of Stillwater Brook, two shafts have been put down on No. 1 vein. This is the same vein on which a 15 feet pit and an open cut were made by the original discoverers of the property. Good ore was encountered on this vein, but to date sufficient work has not been done to indicate the existence of a regular shoot such as is indicated by the work done on the "new vein."

West of the Stillwater Brook, an incline shaft has been started in the trough of the syncline, between the middle and minor anticlinal folds. This shaft at the date of my visit, had been sunk 120 feet, its dip for the first 50 feet being approximately 30° and from there to the bottom 10° . The vein encountered being in the floor of the shaft and extending upward on the north and south sides. From the incline shaft at a depth of 120 feet, a cross-cut has been driven south 40 feet, and connection made with No. 3 shaft. This cross-cut intersects two veins, the first at a distance

of 7 feet south of the shaft, and the second at a distance of 25 feet south of the shaft. On the first vein encountered in this cross-cut, drifts have been started east and west, and on the second vein a drift has been put in east 25 feet.

From the above mentioned work, roughly 75 tons of ore have been recovered, this is on the dumps at the different shafts, and no effort has yet been made to treat it.

Development work has not as yet reached a stage at which definite conclusions as to the extent or value of the ore can be arrived at. Enough has been done however, to show that the deposit is a most important one.

On the surface, a shaft-house has been built at the incline shaft and a small engine-house, housing the equipment used here, consisting of one 30 h. p. boiler; one 10 h. p. boiler; and a small prospecting hoist. At this shaft (incline) two pumps are used, one Northey and one Dean, and two Wood steam drills. The other buildings constructed are blacksmith's shop, three log bunk-houses, one office and stores building, one cook-house, one ice-house and one stable.

Work at this property is to be continued during the winter, and it is expected that in the spring, development work will be far enough advanced to commence work upon the construction of a concentrating mill. The method of treating the ore has not yet been finally decided upon but will probably include crushing by either tube mills, or by rolls, concentrating on wilfley tables, or Frue vanners, roasting and magnetic separation to eliminate the mispickel.

GYPSUM.

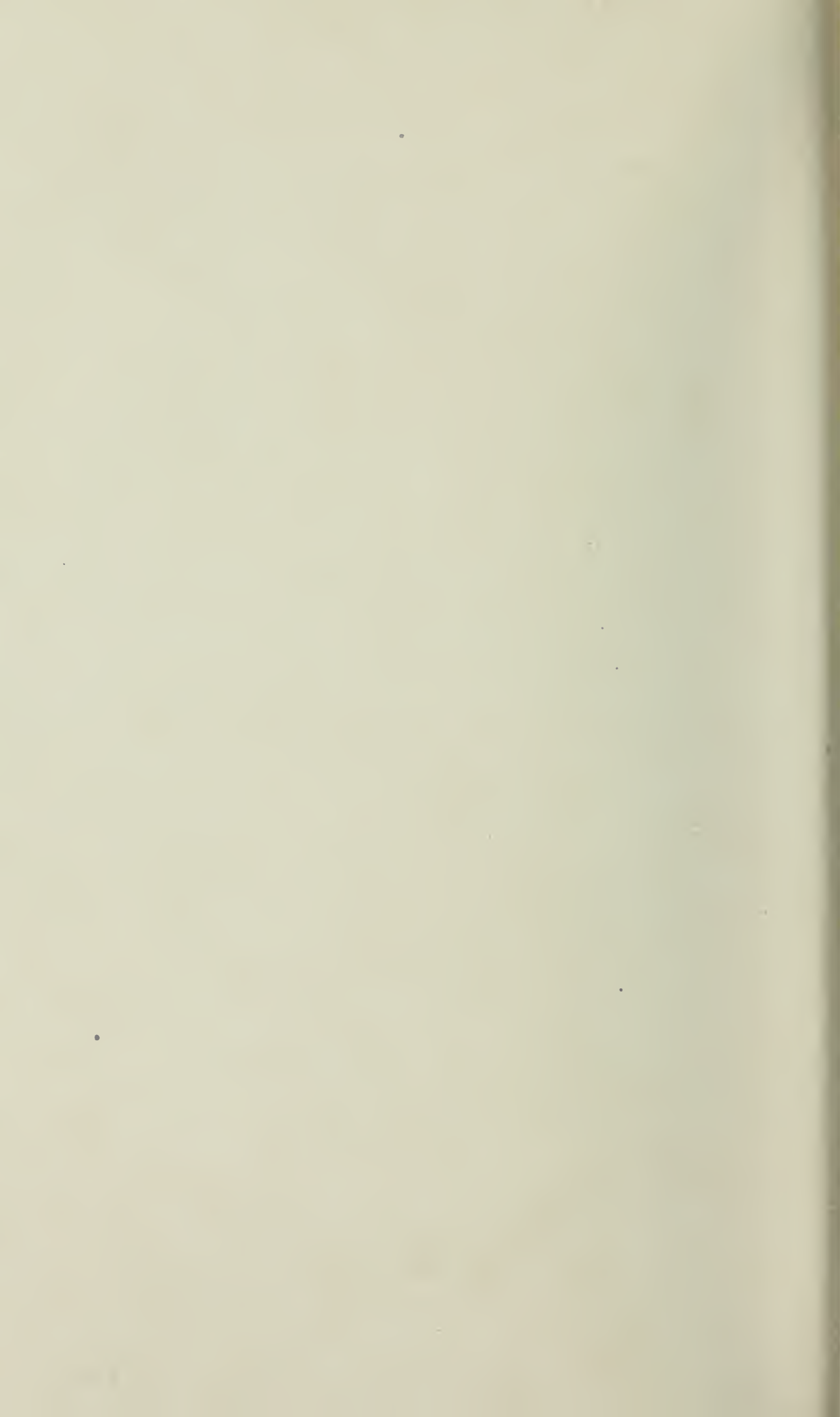
During the year 322,974 tons of gypsum were quarried: this being an increase of 23,929 tons over the amount quarried during the previous year. Of the gypsum quarried 10,500 tons were used in the manufacture of gypsum products in the Province, the balance was shipped to the United States.

The industry employed an average of 640 men during the whole year. The following properties were operated:

Wentworth Gypsum Company, Wentworth and Meadow,
Hants Co.



Scheelite. Moose River, residential section of the Camp . . .



Victoria Gypsum Company, St. Ann's, C. B.

Maritime Gypsum Company, Nappan.

Windsor Plaster Company, Burton's, Hants Co.

Albert Parsons, Walton and Cheverie.

Great Northern Gypsum Company, Cheticamp, C. B.

Newport Plaster Mining and Development Company, Avondale.

Selwin A. O'Brien, Noel.

The industry is steadily growing, but it is to be regretted that more attention is not given to the manufacture of gypsum products within the Province—under present conditions the raw material is sent to the United States and large quantities return to Nova Scotia and other parts of Canada in the different forms of Gypsum products. This condition should be supplemented by Nova Scotia mills supplying not only the Canadian, but a large portion at least, of the United States market.

BRICK AND OTHER CLAY PRODUCT

A total of 21,305,500 bricks were manufactured at the different brick yards of the province during the last year. This quantity is practically the same as the quantity manufactured during the previous year.

The average number of men employed for the year was 230.

The following yards were operated:—

Stephen Brooks, New Glasgow.

New Glasgow Brick and Tile Company, New Glasgow.

Elmsdale Brick and Tile Company, Elmsdale.

Intercolonial Coal Company, (Fire bricks) Westville.

James Miller and Sons, Shubenacadie.

Westville Terra Cotta Company, Westville.

Jacob Walton, Canard.

Middleton Clay Working Company, Middleton.

Mira Brick Company, Mira River.

R. Shaw, Avonport.

George Brooks, New Glasgow.

Sydney Pressed Brick Company, Sydney.

Miller Bros. River Denys.

Spears Bros. and Company, Elmsdale.

Buckler Brick Company, Annapolis Royal.

Maritime Clay Working Company, Pugwash.

974,819 feet of drain, telephone, sewer and other pipe, conduit and tiling, of different sizes were made by :

Standard Drain Pipe Company, New Glasgow.

Intercolonial Coal Mg. Company, Westville.

R. Shaw, Avonport.

Jacob Walton, Canard,

Middleton Clay Working Company, Middleton.

Elmsdale Brick and Tile Company, Elmsdale.

BUILDING STONE.

A total of 8,503 tons of stone for building and other purposes were quarried during the year, and an average of 30 men was employed.

The following quarries being in operation :—

Amherst Redstone Company, Amherst.

Pictou Quarries Company, Pictou.

Wallace Stone Company, Wallace.

Kline Granite Works, Withrod Lake.

Middleton Granite and Marble Works, Nictaux.

The demand for building stone during the past few years has been greatly lessened on account of the greater use of cement, the output of the quarries falling from 63,861 tons in 1907 to 8,503 tons during the year just ended.

I have the honour to be,

Your obedient servant,

H. B. PICKINGS.

GOVERNMENT DRILLS.

HIRAM DONKIN, ESQ., C. E.,

Deputy Commissioner, Public Works and Mines.

SIR:—I have the honour to submit to you my report on boring by Government drills for the year ended September 30th, 1910.

During the year 15 holes were put down, making a total of 5,221 feet 7 inches bored— of this boring 4,497 feet 8 inches was by Diamond drills, and 723 feet 11 inches by Calyx drills. The number of holes put down is an increase of one over the number put down last year, but the total number of feet bored is a decrease of 256.

The demand for drills was about the same as during the previous year.

The 1,500-feet 2 inch core diamond drill purchased last year has been in almost continuous use, boring a total of 2,061 feet. This machine has given thorough satisfaction and with the use of a special core-barrel, a high percentage of core from coal seams passed through has been recovered.

I am glad to be able to again report that no holes were lost. Holes No. 1 at Southampton and No. 1 at Wentworth Center were abandoned on account of surface conditions.

The total expenditure by the Department during the year for maintenance of drills and storehouse, repairs, wages, etc., was \$3,784.53 a decrease of \$2,228.02 from the expenditure of 1908-09. The expenditure in detail was as follows:—

Drill No. 1.....	\$ 531 76
Drill No. 2.....	467 30
Drill No. 3.....	128 22
Drill No. 4.	124 65
Drill No. 5.....	181 10
Drill No. 6.....	504 08
Drill No. 7.....	16 50
Storehouse and general expenses.....	1,830 92

\$3,784 53

This year's expenditure brings the total expenditure for all purposes in connection with core drills from 1899, the year in which the first drill was purchased, to September 30th, 1910, to \$75,170.00.

In the following records of the holes put down, I have omitted records of holes No. 1 Lourdes, Pictou County, Nos. 1 and 2, Wentworth, Cumberland County, as in both cases the amount of boring done during the year was small and the work is to be continued during the coming year, and I thought it advisable to publish these records complete and under the same cover with the other borings in these two districts.

To complete the record of the holes put down at Maccan, I have included No. 5 hole which was put down after the close of the year.

The average cost a foot for all boring was \$0.99 a decrease of \$0.415 from the average cost last year.

The carbon cost a foot for boring by Diamond Drills was \$0.067 and the shot cost a foot for boring by Calyx drills was \$0.02 a foot.

Boring costs, compared with last year's figures show as follows :

	1909	1910	
Cost a foot for all boring.....	\$1.405	\$0.99	decrease \$0.415
Cost a foot for all boring by Diamond Drills.....	0.79	0.93	increase 0.14
Cost a foot for all boring by Calyx drills.....	2.16	1.44	decrease 0.72
Shot cost a foot for boring by Calyx drills	0.055	0.02	decrease 0.035
Carbon cost a foot for boring by Diamond Drills.....	0.037	0.067,	increase 0.03

The above shows three decreases against two increases, the average cost a foot of \$0.99 constitutes I believe a new record.

On the following page is a table showing the work done by each drill, which is followed by the records of the holes put down.

Summary Statement of the Year's Work.

Drill No.	LOCATION.	NO. OF HOLE	DEPTH BORED		TOTAL FOR LOCALITY		TOTAL FOR DRILL.	
			Feet.	Inches.	Feet.	Inches.	Feet.	Inches.
1	Brown's Point, Pictou County	1	462	8	462	8	.....	.....
1	Southampton, Cumberland County.....	1	77	7	.....	.....	.....	.....
1	" "	2	1217	7	1295	2	.....	.....
1	Lourdes, New Glasgow, Pictou County.....	1	303	9	303	9	2061	7
1	Glengarry Valley, Rear Big Pond, C. B.	1	299	10	.....	.....	.....	.....
2	" " " "	2	84	0	.....	.....	.....	.....
2	" " " "	3	635	6	.....	.....	.....	.....
2	" " " "	4	125	0	1144	4	1144	4
3	Maccan, Cumberland County	1	361	6	.....	.....	.....	.....
3	" " " "	2	285	3	.....	.....	.....	.....
3	" " " "	3	363	6	.....	.....	.....	.....
3	" " " "	4	281	6	1291	9	1291	9
4	Remained at Storehouse.....	.....	.....	.....	.....	.....	.....	.....
5	Big Marsh, Antigonish County.	1	559	0	559	0	559	0
6	Remained at Storehouse.....	.....	.....	.....	.....	.....	.....	.....
7	Wentworth Centre	1	13	0	.....	.....	.....	.....
7	" " " "	2	151	11	164	11	164	11
Total boring during year .....		.....	.....	.....	5221	.....	5221	7

Drill No. 1.

Steam diamond, producing 2 inch core.

BROWN'S POINT, PICTOU COUNTY—one hole.

Location.—Brown's Point, Pictou County, 1070 feet north-east of Railway Station, and 335 feet north of railway.

Hole put down for D. McDearmid, et al.

Mineral Sought—Coal. Dip of strata, 11° North East.

Fastest rate of boring—5 feet 4 inches in one hour.

Average rate of boring—1.93 feet in one hour.

Commenced November 13th, 1909. Finished hole December 11th, 1909.

Boring single shift.

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Surface.....	Soil and clay.....	20		.....	.....
Sandstone....	Gray, coarse.....	6	8	26	8
Coal.....		0	2	26	10
Sandstone....	Gray, coarse.....	3	8	30	6
Conglomerate	Gray.....	3	2	33	8
Shale.....	Gray, sandy.....	4		37	8
Sandstone....	Brown.....	7	5	45	1
Shale.....	Blueish gray.....	6	8	51	9
Shale.....	Brown.....	28	3	80	0
Sandstone....	Brown.....	8	8	88	8
Shale.....	Brown.....	2	8	91	4
Sandstone....	Brown, coarse.....	27	8	119	0
Conglomerate	Brown.....	2		121	0
Sandstone....	Gray, coarse.....	47	8	168	8
Shale.....	Blueish gray.....	1	4	170	0
Shale.....	Brown.....	13	8	183	8

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Shale.....	Brown and blueish gray mixed	10	7	194	3
Coal.....	With sulphur balls.....		3	194	6
Shale.....	Gray, sandy.....	25	0	219	6
Shale.....	Blue, gray nodules of sulphur	4	5	223	11
Coal.....		0	11	224	10
Shale.....	Gray, sandy.	17	8	242	6
Shale.....	Brown and grey mixed.....	8	9	251	3
Sandstone....	Gray, fine grained.....	37	5	288	8
Sandstone....	Brown mottled with gray, with hard white nodules.....	2		290	8
Shale or clay.	Brown	38	6	329	2
Sandstone....	Brown	15	3	344	5
Shale or clay.	Brown	12	3	356	8
Sandstone....	Gray	28	1	384	9
Shale.....	Blue, gray	1	6	386	3
Shale or clay.	Brown	33	1	419	4
Sandstone....	Brown	4	6	423	10
Shale or clay.	Brown	14	2	438	0
Sandstone....	Brown	12	2	450	2
Shale or clay.	Brown	12	6	462	8

This hole cost \$359.03 or \$0.777 a foot made up as follows:—

Labor.....	\$ 60 50
Management.....	164 96
Fuel (Coal).....	26 15
Light, oil, waste, etc.....	3 38
Carbon wear.....	22 00
Lumber.....	24 82
Casing Pipe.....	10 58
Freight and truckage.....	27 00
Steel, casing shoe.....	3 50
Blank bits.....	1 44
Core-shells and lifters.....	14 70
Total.....	\$359 03

SOUTHAMPTON.—Two holes.

Number 1 hole—was situated on property of John Siddell 750 feet west of Siddell's barn and 55 feet east of the river. The hole was put down to a depth of 77 feet 7 inches through the surface of soil and gravel, boring was discontinued and the drill moved to the site of Number 2 hole.

Number 2 hole—Location Southampton.

On the property of Charles Harrison about one half mile south-west of Mr. Harrison's house and 31 feet north-east of what is known as Whitestone Brook.

Mineral sought—coal.

Dip of strata—15 degrees north.

Hole put down—for Standard Coal and Railway Company.

Fastest rate of boring—5 feet 3 inches in one hour.

Average rate of boring—1.2 feet in 1 hour.

Commenced hole June 1st, 1910; finished hole August 3rd, 1910.

Boring June 1st to July 1st, double shift, July 1st to August 3rd, single shaft.

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft	In.
Surface.....	Soil and gravel.....	8	.....	.....	.....
Sandstone. ...	Brown, fine grained.....	17	8	25	8
Shale or clay.	Red.....	43	7	69	3
Sandstone....	Brown, fine grained.....	9	7	78	10
Shale.	Brown.....	7	6	86	4
Sandstone. ...	Gray, light.....	9	2	95	6
Shale.	Gray, light.....	3	7	99	1
Sandstone....	Gray, light.....	2	3	101	4
Shale.....	Gray, light.....	4	2	105	6
Sandstone. ...	Gray, light.....	13	0	118	6

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Sandstone. . .	Brown.....	13	4	131	10
Shale.	Red-brown, mottled with gray..	5	7	137	5
Sandstone . . .	Brown, very fine.....	4	5	141	10
Shale.....	Brown.....	15	4	157	2
Sandstone. . .	Brownish gray.....	7	4	164	6
Shale.....	Brown.....	16	7	181	1
Sandstone. . .	Brown.....	7	7	188	8
Sandstone. . .	Gray, light.....	1	8	190	4
Shale...	Brown.....	9	1	199	5
Sandstone. . .	Brown, fine grained, mottled with grey.....	16	4	215	9
Sandstone. . .	Brown with bands of brown shale.....	79	5	295	2
Shale.	Brown.....	8	9	303	11
Sandstone. . .	Brownish, gray.....	13	8	317	7
Shale or Clay	Brown.....	17	2	334	9
Sandstone. . .	Brown.....	1	6	336	3
Shale.	Brown.....	51	7	387	10
Sandstone. . .	Brownish, gray.....	27	8	415	6
Shale or Clay	Brown.....	6	4	421	10
Sandstone . . .	Gray....	1	8	423	6
Shale.	Brown and gray.....	32	6	456	0
Sandstone. . .	Brown.....	10	6	466	6
Sandstone and Shale	Bands of brown sandstone and reddish brown shale.....	235	.....	701	6
Sandstone . . .	Gray, dark.....	9	6	711	0
Sandstone. . .	Fine brown.....	5	0	716	0
Sandstone. . .	Coarse, gray (white and black speckled).....	10	6	726	6
Shale	Dark gray.....	0	5	726	11
Shale.. . . .	Brown.....	7	10	734	9
Shale	Brown with bands of brown sandstone....	62	9	797	6
Sandstone. . .	Light gray.....	18	2	815	8
Shale	Gray.....	0	6	816	2
Shale	Brown.....	37	7	853	9

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Shale and Sandstone .	Red-brown, mottled with blue-gray with bands of brown sandstone.....	116	7	970	4
Sandstone. ...	Gray with coaly streaks.....	2	4	972	8
Shale.....	Gray.....	4	4	977	0
Shale.....	Red-brown, with bands of brown sandstone.....	13	9	990	9
Sandstone. ...	Gray, dark and hard.....	9	3	1000	0
Conglomerate	Gray.....	3	0	1003	0
Shale.....	Red-brown.....	4	3	1007	3
Shale.....	Red-brown, mottled with blue-gray and bands of brown sandstone.....	44	1	1051	4
Sandstone....	Brown, fine grained.....	1	0	1052	4
Sandstone. ...	Blue gray.....	2	0	1054	4
Shale.	Blue gray.....	0	6	1054	10
Shale.	Red-brown with bands of brown sandstone.	30	10	1085	8
Conglomerate	Gray (or coarse grit).....	3	7	1089	3
Shale.....	Red-brown with bands of brown sandstone.	19	9	1109	0
Sandstone....	Gray.....	37	8	1146	8
Shale.....	Red-brown	42	0	1188	8
Sandstone	Brown.....	4	9	1193	5
Shale.	Red-brown	2	0	1195	5
Sandstone ...	Light blueish-gray.....	6	9	1202	2
Sandstone ...	Gray, coarse.....	15	5	1217	7

This hole cost \$881.51 or \$0.724 a foot, made up as follows :—

Labor.....	\$147 00
Management.....	370 22
Fuel (Coal).....	69 33
Light, oil, waste, etc.....	10 88
Carbon wear.....	140 00
Material used in housing.....	20 00
Casing pipe.....	11 40
Freight, truckage, etc.....	74 09
Blank bits.....	5 76
Core shells.....	10 50
Core lifters.....	22 40
Total.....	\$881 58

Number one hole cost \$367.01, or \$4.72 a foot.

On the completion of Number 2 hole at Southampton, the drill was moved to Stellarton, Pictou County, and a hole commenced for the Acadia Coal Company at Lourdes, at the end of the year the depth attained was 303 feet.

Drill No. 2.

Steam power Diamond, producing 15/16 inch core.

GLENGARRY VALLEY, CAPE BRETON COUNTY.—Hole Number One.

Location.—On property of James McInnes, on the north side of a small brook running into McNeil's Lake, 300 yards south of main road, about 350 yards south-east from the house of James McInnes.

Mineral sought.—Coal.

Dip of strata :—15° south, 24° east.

Hole put down for :—M. W. Lawlor et al.

Average rate of boring :—1.4 feet in one hour.

Hole commenced :—October 11th, 1909, finished November 10th, 1909.

Boring :—Single shift.

Name of Rock.	Color and other General Characteristics	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Surface	Red clay and boulders.....	5	0	.....	.....
Sandstone and Shale..	Mottled Red and Gray alternate bands.....	101	2	106	2
Sandstone	Gray	22	0	128	2
Sandstone and Shale..	Gray alternate bands.....	21	4	149	6
Fireclay.....		0	2	149	8
Shale	Very dark.....	0	4	150	0
Shale	Gray	2	3	152	3
Sandstone	Gray	7	0	159	3
Shale	Gray	4	9	164	0
Sandstone	Light gray, coarse	12	6	176	6
Shale	Gray	1	8	178	2
Sandstone	Gray	9	0	187	2
Shale	Gray	3	5	190	7
Coal		3	0	193	7
Sandstone	Gray	5	1	198	8
Sandstone and Shale..	Gray banded.....	11	0	209	8
Shale	Gray very hard.....	13	6	223	2
Sandstone	Gray	14	0	237	2
Sandstone and Shale..	Gray banded.....	27	2	264	4
Sandstone	Gray very hard.....	10	6	274	10
Sandstone and Shale..	Gray banded.....	25	0	299	10

This hole cost \$205.10 or \$0.68 a foot made up as follows :

Labor.	\$ 50 25
Management.	90 00
Fuel, (coal).....	44 00
Light, oil, waste, etc.....	1 90
Carbon wear.....	4 00
Lumber.....	3 00
Core lifters and shells.....	11 95

Total.....\$205 10

NUMBER TWO HOLE.

Location.—On property of Martin McInnes about 40 yards from his house, 70 feet east of brook.

Mineral sought.—coal.

Dip of strata.—13°, south 24° east.

Hole put down for M. W. Lawlor, et al.

Fastest rate of boring.— 4 feet 5 inches in one hour.

Average rate of boring.—.65 of one foot in one hour.

Hole commenced.—November 15th, 1909, finished December 3rd 1909.

Boring single shift.

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Surface	Red sand.....	4	.....	.....	.....
Sandstone....	Gray	1		5	0
Conglomerate	Fine.....	4	2	9	2
Sandstone....	Gray, coarse.....	21	10	31	0
Shale..	Gray showing fossils.....	2	4	33	4
Coal.....	.....	0	2	33	6
Shale.....	Gray with narrow streaks of coal.....	2	9	36	3
Shale.....	Gray	1	0	37	3
Sandstone....	Gray, hard.....	12	9	50	0
Sandstone and Shale	Gray alternate bands	12	0	62	0
Conglomerate	Gray	0	5	62	5
Sandstone....	Gray	3	7	66	0
Conglomerate	Gray	0	3	66	3
Sandstone....	Gray	0	8	66	11
Conglomerate	Gray	1	6	68	5
Shale.....	Gray	4	7	73	0
Sandstone....	Gray	7	0	80	0
Conglomerate	Gray and red, very hard.....	4	0	84	0

This hole cost \$152.25 or \$1.81 a foot made up as follows:—

Labor.....	\$38 25
Management.....	70 00
Fuel (coal).....	7 00
Light, oil, waste, etc.....	50
Truckage, etc.....	33 50
Carbon wear, (mill).....	0 00
Lumber.....	3 00
Total.....	<u>\$152 25</u>

NUMBER THREE HOLE.

GLENGARRY VALLEY.

Location:—On property of Neil McLean about 400 yards southwest of Neil McLean's house and 75 yards off main road leading from Loch Lomond to Big Pond.

Mineral sought:—Coal.

Dip of Strata:—80° to vertical, South 24° East.

Hole put down for:—M. W. Lawlor et al.

Fastest rate of boring:—3 feet 2 inches in one hour.

Average rate of boring:—.69 of one foot in one hour.

Hole commenced:—January 11th, 1910, finished July 30th 1910. No work done January 26th to April 26th inclusive.

Boring Single Shift:—

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Surface	Red clay and boulders.....	21	6	.....	.....
Shale	Gray	4	0	25	6
Sandstone	Gray hard	16	0	41	6
Shale	Gray	3	8	45	2
Sandstone	Gray	2	4	47	6
Shale	Gray	1	6	49	0
Shale and Sandstone .	Gray in bands.....	8	0	57	0
Sandstone	Gray	4	2	61	2
Shale	Gray	10	10	72	0
Sandstone	Gray, fine and hard	31	6	103	6
Sandstone	Gray, fine and hard with narrow streaks of brown.....	6	3	109	9
Sandstone	Gray, hard.....	43	4	153	1
Shale	Gray	3	0	156	1
Sandstone	Gray, hard.....	7	2	163	3
Sandstone and Shale .	Gray banded	18	5	181	8
Fireclay.....	Gray	0	4	182	0
Shale	Gray	3	6	185	6
Sandstone	Red and Gray mixed ...	9	4	194	10
Sandstone and Shale .	Red and Gray sandstone, red shale mixed.....	8	8	203	6
Sandstone ..	Red and Gray banded	7	10	211	4
Sandstone and Shale .	Gray banded with red shale showing fossils.....	54	8	266	0
Sandstone	Light gray fine.....	15	2	281	2
Sandstone and Shale .	Gray banded showing fossils...	31	10	313	0
Shale	Gray.....	4	10	317	10
Sandstone	Gray.....	17	2	335	0
Sandstone and Shale .	Gray, banded showing fossils .	3	0	338	0
Sandstone	Gray showing fossils	5	0	343	0
Sandstone	Gray and red mottled.....	16	10	359	10
Sandstone and Shale .	Red sandstone and gray mottled shale.....	2	3	362	1

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Sandstone	Redish gray.....	3	2	365	3
Sandstone and Shale .	Redish banded	4	3	369	6
Sandstone	Redish and gray banded	3	2	372	8
Sandstone ...	Dark gray	27	8	403	4
Sandstone	Redish and gray mottled.....	6	4	406	8
Shale	Red-brown.....	13	4	420	0
Sandstone	Redish Gray	7	6	427	6
Shale	Red-brown.....	3	4	430	10
Sandstone ...	Red, brown and gray mottled.	30	10	461	8
Sandstone ...	Blue, red, brown and gray.....	8	0	469	8
Sandstone ...	Red, brown and gray mottled.	19	4	489	0
Sandstone ...	Redish gray.....	45	6	534	6
Sandstone and Shale .	Gray coarse sandstone mixed with gray shale.....	4	6	539	0
Sandstone . .	Gray, coarse.....	38	8	577	8
Sandstone and Shale .	Red and gray, mottled.....	3	4	581	0
Sandstone	Brown, blue and gray	30	8	611	8
Shale	Red-brown	7	10	619	6
Shale	Red, brown and gray mottled soft.....	14	2	633	8
Sandstone	Red-brown, hard.....	1	10	635	6

This hole cost \$689.56 or \$1.09 a foot made up as follows :

Labor	\$ 182 25
Management.....	378 00
Fuel (coal)	83 00
Light, oil, waste, etc.....	6 70
Carbon wear.....	30 00
Casing pipe.....	4 00
Blank bits, shells, lifters.....	5 61
	\$ 689 56

NUMBER FOUR HOLE.

Location.—On property of Neil McLean, 350 feet south-east of his house and 75 feet from a 40 feet shaft sunk by Allan Morrison.

Mineral sought.—Coal.

Dip of strata.—Vertical.

Hole put down for M. W. Lawlor, et al.

Average rate of boring.—One foot in one hour.

Fastest rate of boring.—Three feet nine inches in one hour.

Hole commenced.—August 20th, 1910. Finished September 3rd, 1910.

Boring single shift.

Boring at an angle of 45°.

Name of Rock.	Color and other General Characteristics.	Thickness Bored.		Total Depth.	
		Ft.	In.	Ft.	In.
Shale and Sandstone .	Blue and gray mixed.....	26	6	.....	.....
Sandstone. ...	Light gray, hard.....	63	4	89	10
Coal.,.....	.....	3	8	93	6
Coal and clay	Mixed.....	3	0	96	6
Shale.....	Blue.....	2	0	98	6
Clay and soft Shale.....	Gray clay, blue shale.....	5	3	103	9
Coal ... .	.....	1	4	105	1
Coal and Clay mixed	Gray clay.....	0	6	105	7
Clay.....	.....	6	0	111	0
Coal.....	.....	2	3	113	10
Clay.	Gray.....	4	2	118	0
Sandstone and Shale.....	Gray.....	7	0	125	0

This hole cost \$146.55, or \$1.17 a foot made up as follows:—

Labor.....	\$ 38 25
Management	62 50
Fuel (wood).....	4 00
Light, oil, waste, etc.....	80
Carbon wear.....	6 00
Casing pipe	4 00
Blank bits.....	50
Freight, truckage, etc.....	30 50
Total.....	\$146 55

Drill No. 3.

Hand power diamond, producing 15-16 inch core.

MACCAN, CUMBERLAND COUNTY.

HOLE NO. 1.

Location—Situated between the highway and the I. C. R., track at Maccan, south of Maccan Station, 200 yards from the south-west corner of Thomas Higgins barn, 50 feet east of I. C. R. track.

Mineral sought—Coal.

Dip of strata—44°, south 5° west.

Hole pnt down for—The Eastern Coal Company.

Average rate of boring—1.2 feet in one hour.

Hole commenced—July 2nd, 1910—Finished Aug. 4th, 1910.

Boring double shift—drill operated by small engine.

Name of Rock	Color and other General Characteristics	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Surface.....	Sand and gravel.....	14	6	.....	.....
Shale.	Grayish.....	2	6	17	0
Sandstone ...	Light gray.....	0	10	17	10
Shale.	Gray.....	4	2	22	0
Shale... ..	Gray, arenaceous.....	5	0	27	0
Sandstone ...	Light gray.....	11	0	38	0
Shale.	Brownish gray.....	2	0	40	0
Sandstone. ...	Light gray.....	5	0	45	0
Shale..	Brownish gray.....	2	0	47	0
Sandstone. ...	Light gray.....	11	0	58	0
Shale.	Dark gray.....	7	0	65	0
Sandstone. ...	Light buff-gray.....	6	0	71	0
Shale.	Grayish and blueish.....	3	0	74	0
Sandstone ...	Buff gray.....	16	0	90	0
Shale.	Dark gray.....	4	0	94	0
Sandstone. ...	Gray.....	14	0	108	0
Shale.	Dark gray.....	4	0	112	0
Sandstone. ...	Light gray.....	0	4	112	4
Shale.	Dark gray.....	3	6	115	10
Sandstone. ...	Light gray.....	5	8	121	6
Shale and Sandstone .	Gray mixed.....	6	10	128	4
Shale.... ..	Dark gray.....	13	2	141	6
Sandstone. ...	Light gray.....	5	5	146	11
Shale... ..	Dark gray.....	6	1	153	0
Shale.	Bluish gray.....	4	2 1/2	157	2 1/2
Sandstone and Shale.....	Gray in bands.....	26	9 1/2	184	0
Shale.... ..	Gray.....	12	0	196	0
Sandstone. ...	Gray with bands of gray shale	15	0	211	0
Shale.... ..	Dark blue.....	13	0	224	0
Sandstone and Shale	Gray in bands.....	18	6	242	6
Shale.... ..	Red with soft partings.....	9	6	252	0
Sandstone. ...	Gray.....	4	0	256	0
Shale... ..	Redish gray.....	4	6	260	6
Shale.	Blueish gray.....	2	6	263	0
Shale.... ..	Redish gray.....	8	6	271	6
Sandstone. ...	Gray.....	6	0	277	6
Shale.....	Redish gray	5	0	282	6

Name of Rock	Color and other General Characteristics.	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Sandstone. ...	Gray.....	18	6	301	0
Fire-clay .....	.....	1	0	302	0
Shale.	Redish gray.....	13	6	315	6
Fire-clay .....	.....	2	6	318	0
Shale.	Redish brown with thin dark partings.....	7	6	325	6
Sandstone. ...	Gray very fine grain.....	7	0	332	6
Shale.....	Red brown.....	5	6	338	0
Shale.....	Blue.....	3	0	341	0
Shale.....	Red brown.....	4	6	345	6
Sandstone. ...	Gray coarse.....	16	0	361	6

This hole cost \$294.90, or \$0.82 a foot made up as follows:—

Labor.....	\$144 50
Management....	98 71
Fuel (coal).....	12 81
Light, oil, waste, etc.....	1 32
Carbon wear.....	18 00
Casing pipe.....	87
Lumber, derrick, legs, etc.....	10 00
Freight	8 69
Total.....	\$294 90

NUMBER TWO HOLE.

Location.—Maccan 32 feet 6 inches from the southwest corner of the Orange Hall and between it and the Intercolonial Railway, 50 yards south of Maccan Station.

Mineral sought.—Coal.

Dip of strata.—45° south, 5° west.

Hole put down for the Eastern Coal Company.

Average rate of boring.—.92 of one foot in one hour.

Hole commenced.—August 5th, 1910. Finished August 20th 1910.

Boring double shift, drill operated by small engine.

Name of Rock	Color and other General Characteristics.	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Surface.....	Sandy marl and gravel	20	0	.....	.....
Sandstone.....	Gray.....	7	0	27	0
Shale.....	Gray, very soft.....	13	0	40	0
Sandstone.....	Gray.....	24	0	64	0
Shale.....	Dark gray, very soft.....	9	0	73	0
Sandstone.....	Gray.....	17	0	90	0
Shale.....	Brown and blue bands.....	25	0	115	0
Shale.....	Brown-gray very soft.....	7	0	122	0
Shale.....	Brown-gray gritty	19	0	141	0
Shale.....	Blue	6	0	147	0
Sandstone....	Gray.....	12	6	159	6
Shale.....	Brown-gray gritty with thin bands of sandstone.....	38	4	197	10
Sandstone.....	Gray.....	2	0	199	10
Shale.....	Gray, gritty with thin bands of sandstone.....	27	11	227	9
Sandstone.....	Gray.....	5	6	233	3
Shale.....	Gray, with thin bands of sandstone.....	26	9	260	0
Shale.....	Blue.....	24	6	284	6
Sandstone....	Gray.....	0	9	285	3

This hole cost \$229.54 or \$0.80 a foot, made up as follows:—

Labor.....	\$111 75
Management.....	83 99
Fuel (coal)....	7 50
Light, oil, waste, etc.....	2 85
Carbon wear.....	15 00
Casing pipe.....	1 20
Laying water-pipe, etc.....	7 25
Total.....	\$229 54

HOLE NUMBER THREE.

Location :—On the west side of the Intercolonial Railway track 26 feet in the rear of the Maritime Coal Railway and Power Company's office.

Mineral sought :—Coal.

Dip of Strata.—38° south 5° west.

Hole put down for The Eastern Coal Company.

Average rate of boring.—.9 of one foot in one hour.

Fastest rate of boring—2 feet 10 inches in one hour.

Hole commenced.—August 24th, 1910. Finished September 16th, 1910.

Boring double shift.—Drill operated by small engine.

Name of Rock	Color and other General Characteristics.	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Surface	Marl and gravel	26	0	.....	.....
Shale	Blue with bands of sandstone.	33	0	59	0
Sandstone	Gray, coarse grained.....	2	0	61	0
Shale	Blue, very soft.....	17	0	78	0
Sandstone					
and Shale .	Gray mixed.....	41	0	119	0
Shale	Blue gritty.....	20	0	139	0
Sandstone	Gray with bands of shale.....	33	3	172	3
Shale	Blue soft.....	18	9	191	0
Shale	Blue, soft showing shell fossils	16	4	207	4
Shale	Dark blue	67	8	275	0
Shale	Blue with thin brown gritty bands and shell fossils.....	25	0	300	0
Shale	Dark blue	29	7	329	7
Shale	Dark blue with shell fossils...	5	0	334	7
Coal		1	6	336	1
Fireclay.....		9	2	345	3
Sandstone	Gray	6	0	351	3
Shale	Blue with shell fossils	8	9	360	0
Sandstone ...	Coarse gray	3	6	363	6

This hole cost \$401.72 or \$1.10 a foot made up as follows :

Labor	\$179 75
Management.....	143 90
Fuel (coal)	15 00
Light, oil, waste, etc	2 50
Carbon wear.....	18 00
Casing pipe.....	1 56
Couplings, etc.....	1 65
Boiler repairs, etc	37 00
Blank bits, core shells.....	2 36
	\$401 72

HOLE NUMBER 4.

Location.—831 feet north-east of bore-hole Number 3.

Mineral sought.—Coal.

Dip of strata, not determined.

Hole put down for the Eastern Coal Company.

Average rate of boring.—.9 of one foot in one hour.

Fastest rate of boring.—Four feet in one hour.

Hole commenced.—September 17th 1910, finished October 3rd, 1910.

Boring double shift.—Drill operated by small engine.

Name of Rock	Color and other General Characteristics	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Surface	Clay and sand.....	28	0	.....	....
Sandstone ...	Gray.....	2	0	30	0
Shale	Blue.....	6	6	36	6
Sandstone	Gray.....	5	6	42	0
Fire-clay and Shale	Gray.....	9	8	51	8
Sandstone and Shale	Gray.....	12	10	64	6
Coal.....	.....	.....	6	65	0
Fire-clay and Shale	Gray.....	5	0	70	0
Sandstone	Gray.....	1	6	71	6
Shale... ..	Black with shell fossils.....	.....	10	72	4
Coal.....	.....	.....	8	73	0
Sandstone. .	Gray.....	21	0	94	0
Coal.....	.....	3	2	97	2
Fire-clay.....	.....	2	10	100	0
Sandstone. .	Gray.....	4	0	104	0
Shale	Blue.....	8	0	112	0
Sandstone. .	Gray.....	3	0	115	0
Shale	Blue with very hard bands....	65	6	180	6
Shale	Blue with bands of sandstone.	29	6	210	0
Shale	Black with bands of coal.....	3	6	213	6
Shale	Blue.....	12	0	223	6
Sandstone. .	Gray.....	2	0	225	6
Shale	Blue.....	56	0	281	6

This hole cost \$235.21, or \$0.80 a foot made up as follows:—

Labor.....	\$109 36
Management.....	82 00
Fuel (coal).....	9 00
Light, oil, waste, etc.....	2 00
Carbon wear.....	16 00
Casing pipe.....	1 68
Boiler repairs, etc.....	13 00
Blank bits, core shells.....	2 17
Total.....	\$235 21

NUMBER FIVE HOLE.

Location.—265 feet north 5° east of number 4 hole and near the east bank of Maccan River.

Mineral sought.—Coal.

Dip of Strata.—44° south 5° west.

Hole put down for The Eastern Coal Company.

Average rate of boring.—One foot in one hour.

Fastest rate of boring.—Four feet six inches in one hour.

Hole commenced.—October 5, 1910, finished October 22nd 1910.

Boring double shift.—Drill operated by small engine.

Name of Rock	Color and other General Characteristics	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Surface	Sand and gravel	53	0	.....	.....
Shale	Blue	10	0	63	0
Shale and Sandstone .	Gray	158	0	221	0
Shale	Black	2	6	223	6
Coal		1	1 ½	224	7 ½
Shale	Black	0	7 ½	225	3
Shale	Gray		4	225	7
Coal			11	226	6
Shale	Gray	1	9	228	3
Shale and Fireclay . .	Gray	1	3	229	6
Coal			7 ½	230	½
Shale	Gray		9	230	10 ½
Coal			10 ½	231	9
Shale	Gray	3	10	235	7
Coal and Shale	Mixed		5	236	0
Shale	Blue	38	0	274	0
Sandstone . . .	Gray	8	0	282	0
Conglomerate		6	0	288	0
Shale	Dark brown	30	0	318	0
Shale	Blue	3	0	321	0
Shale	Dark brown	14	0	335	0
Sandstone . . .	Gray	13	0	348	0
Shale	Dark brown	12	0	360	0

This hole cost \$266.43 or \$0.73 a foot made up as follows:

Labor	\$118 99
Management	100 40
Fuel (coal).....	17 50
Light, oil, waste, etc.....	1 50
Carbon wear.....	14 00
Casing pipe.....	3 18
Freight	8 69
Core shells and bits.....	2 17
Total.....	\$266 43

Drill No. 5.

Steam Calyx, producing 6 inch core.

BIG MARSH, ANTIGONISH COUNTY, One hole.

Location.—Big Marsh 1150 feet, north-east from the south-east corner of D. J. McDonald's house and Big Marsh Post Office.

Hole put down for T. J. Sears, et al.

Mineral sought.—Coal.

Dip of strata.—North-west 24° at surface, 70° at bottom of hole.

Fastest rate of boring.—6 feet, 4 inches, in one hour.

Average rate of boring.—1.27 feet in one hour.

Commenced boring.—March 22nd, 1910. Finished hole May 13th, 1910.

Boring.—Single shift.

Name of Rock	Color and other General Characteristics.	Thickness Bored		Total Depth	
		Ft.	In.	Ft.	In.
Surface.....	Clay and boulders.....	11	.....	.....	.....
Sandstone....	Gray, very coarse and soft....	44	0	55	0
Grit.....	Gray	3	0	58	0
Sandstone....	Gray, micaceous.....	9	0	67	0
Shale and clay.....	Blue, very soft.....	1	6	68	6
Shale.....	Dark gray.....	2	0	70	6
Shale.....	Blue	3	0	73	6
Sandstone....	Gray	29	8	103	2
Conglomerate	Gray	3	0	106	2
Sandstone....	Gray	9	0	115	2
Grit.....	Gray	3	0	118	2
Sandstone,..	Gray	31	6	149	8
Conglomerate	Gray, fine.....	2	0	151	8
Sandstone....	Gray	16	0	167	8
Conglomerate	Gray, fine.....	22	0	189	8
Sandstone....	Gray	38	6	228	2
Shale.....	Dark blue.....	1	0	229	2
Shale and... Sandstone..	Dark blue and gray mixed	14	0	243	2
Shale.....	Red and blue mixed (arenaceous)	19	4	262	6
Shale.....	Blue.. ..	1	0	263	6
Sandstone....	Gray	26	0	289	6
Shale.....	Light blue.....	23	0	312	6
Sandstone....	Gray	10	0	322	6
Shale.....	Light blue.....	4	0	326	6
Shale and Sandstone	Blue and gray.....	17	6	344	0
Shale.....	Light blue.....	8	0	352	0
Sandstone	Gray and dark blue.....	31	0	383	0
and shale		73	6	456	6
Shale.....	Dark blue.....				
Shale	Black.....	0	6	457	0
Shale	Dark blue.....	12	0	469	0
Shale	Black or dark brown.....	90	0	559	0

This hole cost \$804.96 or \$1.44 a foot, made up as follows:—

Labor	\$181.88
Management	200.20
Fuel (Coal and wood).....	173.88
Light, Oil, waste, etc.....	13.25
Shot	10.50
Gravel	3.00
Lumber	45.00
Casing pipe.....	10.00
Freight and truckage, etc.....	156.07
Shot bits.....	11.18
Total.....	\$804.96

Drill No. 7.

Hand or horse-power Calyx, producing a 1- $\frac{3}{4}$ inch core.

WENTWORTH CENTRE, CUMBERLAND COUNTY.

This drill was sent to Wentworth Centre, Cumberland County, and commenced boring on September 12th, 1910, for G. B. Howard, for copper. At the end of the year two holes had been put down making a total of 164 feet and work was being continued.

I am holding the records of this work over and will include them in next year's report when the work will have been completed.

I have the honour to be,

Your obedient servant,

H. B. PICKINGS.

Provincial Museum and Science Library.

PROVINCIAL MUSEUM,

Halifax, N. S., 28th January, 1911.

TO HIRAM DONKIN, ESQ., M. E.,

Deputy Commissioner of Public Works and Mines.

Sir,—I respectfully present herein a report on the Provincial Museum of Nova Scotia and the Provincial Science Library for the calendar year 1910.

PROVINCIAL MUSEUM.

Accessions.—During the year 1910 there were received and catalogued with all available data, 1586 specimens, representing 189 accessions. Of these, 1580 specimens (187 accessions) relate to Nova Scotia, and 6 specimens (2 accessions) are from elsewhere.

The following is a brief classified summary of the specimens received: mineralogy, 63 specimens; petrology, 8; palæontology, 1; botany, 625; zoology, 526; anthropology, 352; metallurgy, industry and commerce, 2; naval architecture, 0; history, 1; art, 6; numismatics, 2; total, 1586.

Specimens received since 1900.—The following summary gives the number of additions that have been received during the past eleven years, since the re-organization of the museum:

1900.....	1202	specimens, or 133	accessions.	
1901.....	2660	"	"	546
1902.....	2039	"	"	816
1903.....	1911	"	"	744
1904.....	742	"	"	494
1905.....	722	"	"	210
1906.....	1510	"	"	135
1907.....	526	"	"	117
1908.....	585	"	"	142
1909.....	1198	"	"	134
1910.....	1586	"	"	189
Total: 11 years....	14,681			3,660

An average of 1,335 specimens, and 333 accessions a year.

Number of specimens in the museum.—The total number of specimens in the museum on 31st December 1910, was 24,780. When the museum collections were revised in October-December 1899 there were retained 10,099 specimens. From 1900 to date, 14,681 specimens have been added. Allowing for specimens that had to be discarded in 1899 because of lack of data, there can be no doubt that during the succeeding eleven years the number of accessions much exceeds the total number obtained from 1831 (when the old Mechanics' Institute was founded) to 1899, a period of sixty-eight years. This is practical evidence of a very satisfactory growth.

Classified summary of the number of specimens in the Provincial Museum of Nova Scotia, to 31st December, 1910.

DEPARTMENT.	NO. OF SPECIMENS.
Geology :	
Mineralogy, Nova Scotian	3630
Foreign.....	1951
	————5581
Petrology (rocks), Nova Scotian.....	1876
Foreign.....	477
	————2353
	————7934
Palæontology :	
Plants, Nova Scotian	508
Foreign.....	6
	————514
Invertebrates, Nova Scotian... ..	238
Foreign.....	493
	————731
Vertebrates, Nova Scotian	37
Foreign.....	60
	————97
	————1342
Botany : Nova Scotian, herbaria.....	3556
Miller's paintings of	
wild flowers of N. S.	99
Fruits	54
Woods.....	63
Grains.....	55
	————3827

Foreign, herbaria	1497	
Economic seeds, Canada	100	
Woods.....	396	
Cotton	7	
		—2000
		—5827
		—5827
Zoology :		
Invertebrates (exclusive of molluscs & insects),		
Nova Scotian.....	321	
Foreign.....	268	
		—589
Molluscs, Nova Scotian	541	
Foreign.....	925	
		—1466
Insects, Nova Scotian.....	1967	
Foreign.....	90	
		—2057
Fishes, Nova Scotian	386	
Foreign.....	50	
		—436
Batrachians, Nova Scotian.....	61	
Foreign.....	15	
		—76
Reptiles, Nova Scotian.....	35	
Foreign.....	50	
		—85
Birds (including nests and eggs), Nova Scotian.	445	
Foreign.....	50	
		—495
Mammals, Nova Scotian.....	193	
Foreign.....	24	
		—217
		—5421
Anthropology :		
Archæology, Nova Scotian.....	1229	
Foreign.....	71	
		—1300
Ethnology, Nova Scotian.....	48	
Foreign (in storage), about	1004	
		—1052
		—2352
Metallurgy and other industries, and commerce,		
Nova Scotian.....	152	
Foreign.....	1	
		—

Naval architecture, Nova Scotian.....	8	
Foreign.	0	
		8
History :		
Historical relics, &c., Nova Scotian.....	127	
Foreign.....	45	
Art :		172
Sculpture, prints, & paintings, relating to Nova Scotia.....	29	
Foreign.....	10	
		39
Ceramics, Nova Scotian.....	53	
Foreign.....	65	
		118
		157
Coins, medals & paper currency, Nova Scotian	104	
Foreign	1310	
		1414
Grand total, number of specimens in Provincial Museum, on 31st December, 1910.....		24,780

Table showing the number of specimens, in each department of the museum, that are Nova Scotian, and the number that are not :

DEPARTMENTS.	NO. OF SPECIMENS.		
	Nova Scotian	Foreign	Total
Mineralogy	3630	1951	5581
Petrology	1876	477	2353
Palæontology	783	559	1342
Botany.....	3827	2000	5827
Zoology	3949	1472	5421
Anthropology... ..	1277	1075	2352
Metallurgy and other industries, &c.....	152	1	153
Naval architecture.....	8	0	8
History	127	45	172
Art.....	82	75	157
Coins.....	104	1310	1414
Totals.. ..	15,815	8,965	24,780

Old specimens retained in the museum when it was revised in October-December, 1899.....	10099
Specimens received and catalogued with full data, from 1st January 1900 to 31st December 1910, both inclusive, (namely accessions nos. 1 to 3660).....	14681
Total.....	24,780

Economic minerals at provincial exhibition.—During the provincial exhibition which was held from 28th September to 6th October last, the permanent collection of economic minerals and mineral products of Nova Scotia was again shown in the mines building under the museum's superintendence. The building in which the exhibit is made, was entirely re-decorated in white and gold, and presented a better appearance than heretofore. The accomodation of the building is becoming much overtaxed, and exhibitors would be willing to take larger spaces if it could be offered to them. The placing of the Nova Scotia Steel and Coal Co.'s new exhibit necessitated the complete re-arrangement of most of the central exhibits, which are of a very heavy character. I was present each day and evening to give information and to identify and give an opinion on the value of specimens submitted by visitors. Many persons from the country take advantage of this opportunity to bring samples for inspection.

The Nova Scotia Steel and Coal Company, Ltd., of New Glasgow and Sydney Mines, replaced its old exhibit, which had been shown for some years, by an entirely new and much enlarged series of samples of its raw materials and finished iron and steel products of all kinds, including two large steel ingots. This exhibit, which was installed under the superintendence of the company's representative, Mr. L. H. Johnstone, is a most thorough one, and reflects great credit upon the company, and it drew encomiums from everyone who visited the building.

The Sydney Pressed Brick Company, Ltd., per Mr. H. C. Burchell, managing director, erected an attractive booth, showing the architectural capabilities of its slag-lime pressed bricks which are manufactured from the slag of the Dominion Iron and Steel Company's furnace. The bricks are of a pleasing grey colour, but may be tinted any colour.

In addition to the other rich gold specimens owned by the department, there was shown for the first time a very handsome

one, recently acquired by the government, which had come from the DeWolf lead, New Albion mine, Montagu, Halifax county.

Among other new samples, were pottery clay shown by Messrs. James Prescott and Sons' "Enfield pottery," Enfield, Hants co.; scheelite (tungsten ore) from Moose river, Halifax county, shown by H. C. Borden of Halifax; argentiferous galenite (silver-lead ore) from lease of R. Bruce Kirk, south bank of West River St. Mary's, near Smithfield, Guysborough county, shown by George A. Hirschfeld of Halifax, agent of the owner; and moulding-sand from Nine-mile river, near Elmsdale, Hants county, exhibited by W. Mosher of Dartmouth.

The following is the report of the judges of class 113, minerals of Nova Scotia:—

The exhibit in the mines building has been rearranged and presents a very attractive appearance.

The exhibits calling for special attention and for which we have made awards are as follows:

(1) The Nova Scotia Steel & Coal Co's exhibit is very complete, including the raw materials and finished products used and made by this company. We have awarded a gold medal for this very excellent exhibit.

(2) The Sydney Pressed Brick Co., has a very good exhibit of its product, which is a new one for this province. We have awarded a gold medal for this.

(3) W. Mosher exhibits samples of moulding-sand which is coming into use locally, replacing the imported article. For this we have awarded a silver medal.

(4) The Halifax Shovel Co., has an exhibit of the several types of mining shovels manufactured by it. For this we have awarded a silver medal.

(5) H. C. Borden exhibits samples of scheelite (tungsten ore) from Moose river, Halifax co. This is evidently destined to be an important industry in the province. We have awarded a silver medal for this.

(6) James Prescott & Sons, exhibit a block of pottery clay from Enfield. This represents quite an important industry, and we have awarded a silver medal for this.

We would also wish to mention an exhibit of silver-lead ore from Smithfield, Guysborough co., exhibited by R. B. Kirk.

In conclusion we wish to state that the permanent exhibits of the Nova Scotian government and those of the several industrial corporations of the province, have been arranged to show off to the best advantage under the competent supervision of Mr. Harry Piers.

Respectfully submitted,

Halifax, N. S.,
3rd Oct., 1910.

R. H. BROWN, }
A. L. MCCALLUM, } Judges.

Minerals in museum.—Among accessions of interest in this department reference may be made to the following:—Argentiferous galenite (silver-lead ore) from R. B. Kirk's lease, south bank of West river St. Mary's, Guysboro county, from G. A. Hirschfeld.—Argentiferous galenite from Dunbrack's prospect, 2 miles north-west of Head of Musquodoboit harbour, Halifax county,—Cassiterite (tin ore) from deposit in granite, E. Turner's prospect, discovered in 1907, H. Meister's farm, Wallabach stream, between Camp and Harris lakes, $3\frac{1}{2}$ miles north of New Ross, Lun. co., from A. L. McCallum.—A large and rare scheelite crystal from deposit at Scheelite, $2\frac{1}{2}$ miles west-south west of Moose River gold mines, Halifax county, from A. A. Hayward. This is the best crystal of scheelite known to have been found in Nova Scotia.—Scheelite in quartz from A. L. McCallum's prospect, between Perry lake and Lake Thomas, about one mile north-north west of Waverley, Halifax county. Next to the Moose river one, this seems to be the most promising deposit of tungsten ore found in the province.—A number of small common opals from quartz in granite, about one mile south-south west of south end of Lake Ramsay, Lunenburg county, from Charles Keddy. The largest specimen received weighed 40.9 cg. This is another interesting addition to the many minerals recently found in this locality.—Crude petroleum said to have been struck on 31st July 1910 at 1180 feet from surface in bore-hole of Maritime Oil and Gas Co., on farm of John Dunbar, about $\frac{1}{8}$ mile east of Dunbar brook, about $\frac{3}{8}$ mile north of Doherty cove, North Lake Ainslie, Inverness county, from F. H. Stover.—Supposed volcanic bombs or slightly felspathic quartzose spherulitic concretions from pre-Cambrian rocks north-east of the Johnstone baryte mine, near Trout brook, Lake Ainslie East Side, Inverness county, from George Boston. (See Dr. Poole's paper in *Trans N. S. Inst. Science*, vol. xi, p. 339, founded on similar specimens in the museum).

Botany.—An important addition received from Dr. Charles A. Hamilton of Mahone Bay, is a large collection of 620 specimens of dried and mounted algæ (seaweeds) collected by the donor in Mahone bay, Lunenburg county. The specimens are named, largely by a specialist. This is a welcome addition to our herbarium which now contains 3,556 Nova Scotian specimens and 1,497 foreign ones, a total of 5,053 specimens, exclusive of wood and seed samples.—Specimen of the harebell (*Campanula rotundifolia*) and *Juniperus horizontalis*, Moench, from Herring cove, Halifax county, have been received. A large part of our Nova Scotian collection of plants was lent, for examination, to Prof. J. Macoun naturalist of the Canadian geological survey.

Invertebrates (exclusive of molluscs and insects).—To this department have been added some specimens of sea-anemones, as yet undetermined, from Halifax harbour; a small crustacean (*Mysis sternolepis* or a related species) taken on 3rd July in shallow water at head of the North West Arm, Halifax; specimens of the beach-flea (*Orchestia agilis*, Smith) from McNab's island, Halifax, 15 September; a "sea-mouse" (*Aphrodite aculeata*, L.), off Dominion Coal Co.'s wharf, Halifax harbor, 11 March.

Molluscs.—Mr. A. R. Campbell has presented a collection of mollusca collected by him in 1906 and subsequently, chiefly in Pictou county, and embracing 106 specimens representing 42 nominal species, 8 of which are not included in J. M. Jones's "Mollusca of Nova Scotia" (*Trans. N. S. Inst. Nat. Sc.*, vol. iv.) This collection formed the basis of Mr. Campbell's paper on "The Molluscs of Pictou County" published in the *Bulletin of the Pictou Academy Scientific Association*, vol. i, no. 2 (Pictou, Nov. 1906), pp.25-26, in which was given a list of 40 species.

Tunicates.—There have been received a large number of very beautiful chain-like tunicates of the order Thaliacea, which were taken when they were very abundant in Halifax harbour on 21 September, and presented by T. S. Tobin. They belong to the genus *Salpa*, but the species is so far undetermined. These animals are generally very rare in our waters, and Mr. S. Y. Wilson, fish merchant, informs me that he has only observed them two or three times in previous years, about this season. It is probable that they were brought onto our coasts by warm currents from the southward, and at the time it was noted that the temperature of the water of the North West Arm was about 68°, which I think is warm for the date. The tunicates are of interest as possessing in certain stages a notochord, etc., and they form a link between the vertebrates (chordata) and invertebrates.

Fishes.—The following notable specimens have been received. Horned pouts (locally known as "catfish"), *Ameiurus nebulosus* (Le Sueur), from First and Second Dartmouth lakes, Hx. co., 20 May and 2 June, presented by L. A. Purcell.—Six specimens of *Couesius plumbeus* (Agassiz), a species of Cyprinidæ not included in Jones's list of the fishes of Nova Scotia, taken on 4 May in Penhorn lake, near Dartmouth, Hx. co., by L. A. Purcell. Dr. Philip Cox of Fredericton informs me that he collected this species several years ago in La Have river, N. S., and that the type in that river is very near the lake form in New Brunswick, though differing from the Gaspé variety (see also Dr. Cox's

"Cyprinidæ of Eastern Canada" in *Proc. Nat. Hist. Soc. of Miramichi*, no. 2, 1901, pp. 39-42).—A number of specimens of the golden shiner (*Abramis chrysoleucus*, Mitchell), another species of the difficult Cyprinidæ, taken 19 April in Maynard's lake, where it is common, Dartmouth, Hx. co., by Mr. Purcell.—*Fundulus diaphanus* (Le Sueur), locally known as fresh-water minnow, from Cole harbour, Hx. co. Jones in his list of the fishes of Nova Scotia had not determined the specific name of this fish.—Two specimens of a variety of the common pipefish (*Siphostoma fuscum*, Storer) taken, 16 May, in Millcove, Dartmouth, Hx. co., by L. A. Purcell. Both specimens are males and differ from the normal in having three more rays (43) in the dorsal fin than the maximum normal number (40); and in the dorsal being on $11\frac{1}{3}$ and 12 rings respectively instead of only 9 rings. It must be either a variety of *S. fuscum* or possibly a new species. The pipefish is very rare in Nova Scotia.—A variety of the nine-spined stickleback (*Pygosteus pungitius*, Linn.), taken on 19 May in brackish water in pool at outlet of Little Salmon river, head of Cole harbour, Hx. co., by Mr. Purcell. The dorsal fin formula is IX-8, whereas the description gives the formula as IX-I, 9. In our specimen there is no indication of the additional spine before the second (soft) dorsal. This seems to indicate a variety of the common form or possibly a new species if persistent.—A large series of the common eastern stickleback (*Gasterosteus bispinosus bispinosus*, Walbaum), sometimes locally called "thorn-fish," taken on 29-30 April in brackish water, in the canal, under bridge near St. James church, Dartmouth, Hx. co., by Mr. Purcell. The number of bony plates on the sides would make this the typical marine form *G. bispinosus bispinosus* and not the less fully armed beackish and fresh-water form *G. bispinosus cuvieri*, or a form of the former tending towards the latter.—A "sword" of the common sword-fish) *Xiphias gladius*, Linn.), taken on 29 August, 1909, at Lockeport, Shel. co., and presented by Thomas M. Fraser. The species is usually rare in our waters, but a number were taken off Halifax harbour, and other places on the Nova Scotian coast, in the summer of 1909.—A fine adult specimen of the leather-jacket or trigger-fish (*Balistes carolinensis*, Gmelin, = *B. capriscus*, Gmelin) taken with a spear on 25 August, near shore, Halifax harbour, between Woodside sugar-refinery and Fort Clarence, Dartmouth, Hx. co., by Thomas Henneberry and presented by Arthur Manley. This is only the second record of the occurrence of this fish in Nova Scotian waters, and its presence is to be considered as accidental. J. M. Jones in his "List of the Fishes of Nova Scotia" (*Trans. N. S. Inst. Nat. Sc.*, vol. v, p. 95) mentions a specimen taken at St. Margaret's bay which was then

in the provincial museum. I have not been able to recognize that specimen in our collections. Jordan and Evermann (*Fishes of North America*, p. 1701) give its range as "tropical parts of the Atlantic, occasional northwest in the gulf stream; very common on our coast and in the Mediterranean, rarely north to England". DeKay records it from New York. The present specimen is typical and agrees well with descriptions. Length to base of caudal, 15.30 inches.

Batrachians and reptiles.—A specimen of the rare newt (*Diemyctylus viridescens*, Rafinesque), taken on 12 May in Albro's lake, about one and a half miles north-northeast from Dartmouth, Hx. co., was presented by L. A. Purcell who reports it fairly common in that lake.—We have continued adding specimens of mounted toads and frogs to our collection, to supplement the ones in alcohol.—Dr. Frank H. Reid has presented a very remarkable abnormal colour variety of the red-bellied snake (*Storeria occipitomaculata*, Storer) which he took in the end of September at Nictaux, near Middleton, Ann. co. It agrees in all particulars structurely and in colour with normal individuals, except that the lateral quarter of the ventral plates (which are otherwise deep salmon red as in the normal specimen), and also the jaws, are whitish, thickly and finely mottled or punctated with black. This gives the appearance, at a little distance, of a very noticeable grey band or stripe on each side of the ventral line. These two bands are very prominent, and extend, but less wide, to near the end of the tail. The extreme lateral parts of the ventral plates are brown like the back. I have never seen these greyish bands on any of the many specimens I have before examined, nor do I find any reference to them in works on the subject. If persistent in various individuals they may indicate a new species, and at any rate this colour variety is worthy of a sub-specific name. Dr. Reid says the red-bellied snake is rare about Middleton, whereas it is merely uncommon near Halifax.—A number of specimens of the garter snake (*Eutamias irtalis*, Linn.) have been collected, showing various varietal forms, and indicating how these forms, to which sub-specific names have been assigned, intergrade into one another, and how difficult it is to determine to which particular sub-species to refer an individual. In fact as far as our Nova Scotian specimens are concerned it shows the need of revision of the nomenclature of the forms of this species and perhaps the consolidation of some of the varieties now recognized in the literature on this subject.—From Ralph McDonald and Robert Walsh we received a specimen of the very rare ring-necked snake (*Diadophus punctatus*, Linn.) taken on 12 August near Chain rock, North West Arm, Point Pleasant park,

Halifax, a spot where this species seems to be less rare than elsewhere.—Henry McKenzie presented a specimen of the logger-head turtle (*Thalassochelys caretta*, Linn.) which he captured on 23 August while it was floating on top of the sea near Herring (Phoenix) shoal, one mile south-east of the south-eastern side of Phoenix island, off Spray harbour, Hx. co. This is the first time this species has been taken in Nova Scotian waters, and its occurrence is accidental, it having probably been blown out of its usual habitat or carried northward in the gulf stream. It is a native of tropical and semi-tropical seas and has occurred accidentally north to Massachusetts, but has never before been reported from so far north. The length of the carapace is 11 inches.

Birds.—Notable accessions are as follows: Bonaparte's gull (*Larus philadelphia*, Ord), an immature specimen, taken by Fred. Smith, on 30th August, at Salmon river, near Truro, Col. co. It is rare in the province.—Leech's petrel (*Oceanodroma leucorhoa*, Viell.), a rare species in Nova Scotia, killed by flying against a telephone wire on South street, Halifax, about 15th April, 1909.—An immature cormorant or shag (*Phalacrocorax carbo*, Linn.), another rare bird, taken by Daniel Fraser, at Folly lake station, Col. co., on 20th Sept., 1909.—A black-bellied plover (*Charadrius squatarola*, Linn.), adult male in the uncommon summer plumage (black breast), taken at Chezzetcook, Halifax county, on 28th August.—Two specimens of the now rare American golden plover (*Charadrius dominicus*, Mull.), one taken by J. R. Creed near Truro, Col. co., late in September 1908, and the other at Three fathom harbour, Halifax county, on 28th September, 1910. This species which was formerly very abundant in the autumn has now become rare, although several (an unusual number) were taken in the fall of 1910.—An immature female red-tailed hawk (*Buteo borealis*, Gmel.), killed by Frank Tattrie at Nutby, Colchester county, on 22nd August. It is uncommon in the province.—Rose-breasted grosbeak (*Habia ludoviciana*, Linn.) taken by J. Perrin at McNab's island, Halifax harbour, on 23rd May. The species is rare about Halifax, but is less uncommon in the western and north-western parts of the province.—Loggerhead shrike (*Lanius ludovicianus*, Linn.) taken by Fred. Smith near Centre street, Truro, Colchester county, on 28th December, 1909. This is a new addition to the list of Nova Scotian birds, it being the first time the species has ever been taken in the province. It is a most unusual time of the year to find such a species here, as its breeding range only extends northward to the Great lakes and eastward through central New York to Vermont and Maine. The typical species is not mentioned in

Macoun's *Catalogue of Canadian Birds*, 1909, although it gives the very closely related subspecies *L. ludovicianus migrans*, W. Palmer, as a rare summer resident at Scotch lake, York county, New Brunswick, and elsewhere in Canada.—Parula warbler (*Compsothlypis americana*, Linn.), a rare Nova Scotian species taken by H. S. Cruikshank and Fred. Smith near Gay's river, Halifax county, on 21st May.—Bay-breasted warbler (*Dendroica castanea*, Wils.), another rare species, adult male, taken by L. A. Purcell, to south of Melville island, North West Arm, Halifax county, on 19th July 1908; and another adult male of the same species, taken by H. S. Cruikshank on the Archibald property, Truro, Colchester county, on 1st June, 1910.

Mammals.—We have obtained a specimen of the eastern sable or pine marten (*Mustella americana*, Turton) trapped by Oscar Reid at Harmony, about four miles southeast of Truro, Colchester county, on 8th December 1909, a species not hitherto in our collection.—A head of the northern Virginia deer (*Odocoileus americanus borealis*, Miller), shot at South Branch Stewiacke, Colchester county, on 12th December 1908, and presented by the chief game commissioner, J. A. Knight. This species was introduced into Nova Scotia some years ago, although previously it was occasionally observed near the New Brunswick boundary in Cumberland county.—Common woodchuck (*Arctomys monax*, Linn.) from Little River Musquodoboit, Halifax county, 10th July 1909.—Hind feet of American varying hare (*Lepus americanus* Erxl.=Nova Scotian hare, *L. americanus struthopus*, Bangs), with a small abnormal cutaneous growth on the upper part of each. On the right foot the growth arises from a place 2.50 inches from the end of the longest claw, and seems to be from (but probably not attached to) the phalanges; on the left foot the growth arises 3.75 inches behind the end of the longest claw and seems to be from (but probably not attached to) the metatarsal or tarsal bones. Otherwise the animal was normal and apparently healthy.

Anthropology.—The following accessions are worthy of note. A reddish jasper stone arrowhead from field on Edward Davidson's farm, a quarter of a mile from shore of Porter's lake, Halifax county; a reddish jasper notched "arrowhead" or knife, 2.30 inches long and 1.13 inch greatest width, found on farm of Stephen Hiltz, Martin's river, between Chester Basin and Mahone Bay, Lunenburg county, in June, and presented by Dr. Charles A. Hamilton; and four stone arrowheads (1 triangular, well formed, of light grey chalcedony; 2 tanged, roughly formed, of white quartz; and 1 broken point also of white quartz), found by Indian

"Lone Cloud," 24th October, seven inches below the surface, in red clay, on top of high bank on northeast side of Liverpool river, directly opposite the first pulp-mill, first falls, Indian reserve, not quite a quarter of a mile above Milton, Queen's county. The presence of very many chips of quartz and of rocks from the Bay of Fundy at the latter place, where the four arrowheads were discovered, indicates that it must have been the site of an arrow-maker's camp, and it is a tempting place for further investigation.—Two stone adzes or "celts," one 7.60 inches long, well-formed of quartzite; and the other 6.60 inches long, of arenaceous slate or argillaceous quartzite, more rough in appearance, probably from the effects of weathering. Both were found by the Indian "Lone Cloud" on a little island in the middle of the Shubenacadie river, about a hundred yards west of the Truro road iron bridge over the river, and a little less than 3-16th mile west of outlet of Benery brook, about half a mile due south of Enfield station, on boundry between Hants and Halifax counties.—A reddish-buff-coloured sandstone "pendent" or "sinker" (plummet-shaped), 3.20 inches long, slightly flattened by friction on two sides as is often the case in such implements. The top had been broken off. These so-called pendants are rare in Nova Scotia. The present specimen was found by the same Indian on the little island in the Shubenacadie river, to south of Enfield station, to which reference has just been made.—A stone gouge, with groove running the entire length, of what seems to be fine-grained quartzite, dug up by a Mr. Kempton, ten feet below the surface, so it is reported, at Clyde river, Shelburne county, a few years ago, and presented by Mr. Maynard Bowman. The depth at which it was found, if correctly reported to Mr. Bowman, is a most unusual one at which to find such implements.

The most important addition to this department is a very valuable set of 331 sheets of copies, most carefully made by the late George Creed, postmaster of South Rawdon, N. S., in the summers of 1887 and 1888 (mostly the latter), of the extremely interesting petroglyphs, or drawings, etc., scratched on stone, *in situ*, by the ancient Micmac Indians and later persons, on the well-known Fairy rocks in Fairy lake, part of Kojimkoojik lake; on a small island south of Glode's island, Kojimkoojik lake; on George's lake (near Kojimkoojik lake); and on Port Medway river; all in Queen's county. Mr. Creed classifies the copies as follows :

Class A. 'Lodge's' [or squaw's caps],....	22	sheets.
" B. Various enclosed designs,.....	9	"
" C. Vessels (sailing),.....	41	"
" D. Canoes,.....	13	"
" E. Human figures,.....	45	"
" F. Animals, birds, snakes,.....	31	"
" G. Decorative designs, ...	25	"
" H. Plants, etc.,.....	9	"
" I. Writing, hieroglyphics, etc.,...	18	"
" J. Roman crosses, etc.,.....	6	"
" K. Parts of human figure,...	11	"
" L. Nondescript and unclassified,...	22	"
" M. " " " ..	29	"
" N. " " " ..	46	"
" Q. Curious [indecent],... ..	4	"
—		
Total.....	331	"

Mr. Creed became first interested in these petroglyphs by references to them in F. More's *History of Queen's County* (p. 213). Creed first visited Fairy rocks in July, 1881. Fairy rocks from which most of the petroglyphs were copied, are three in number and are situated on the east side of Kojinkoojik ("swelled parts") lake and just south of the entrance to Fairy lake. Fairy lake seems to be really a bay of the larger lake Kojinkoojik. The rocks are on the boundry between Queen's and Annapolis counties. The northernmost of the three rocks is immediately at the entrance of Fairy lake, the westernmost and central rocks showing but a small surface at high water and at the highest water being entirely submerged. Three other inscribed rocks are about two miles south of these, at Piel's (a corruption of Pierre's) point, opposite an island called Glode's island, so named from a well-known Micmac family. These rocks are virtually a continuation of each other with depressions between them. Other localities where rocks are engraved are George's lake at southeastern end of Kojinkoojik lake, and Port Medway river; but Fairy rocks were the favourite location. The rocks in each place are fine-grained polished Cambrian slate, the polishing doubtless being the result of glacial action. The copies were made by running along the lines a blue aniline pencil and then pressing a wetted sheet of paper upon them, so that the impression was taken by a process of printing. Colonel Garrick Mallery of the bureau of ethnology, Washington, who was sent there for the purpose, visited Fairy rocks with Mr. Creed in the summer of 1887 and some of the designs were then copied. During the summer of 1888 Mr. Creed

camped on the ground for some weeks making much more extensive investigations. Of the 2,000 or more different subjects found, Creed obtained positive or negative copies of nearly 350. Some of the drawings were then beneath the water which covers the greater part of the others during the most of the year. United States ethnologists had a theory that the pictographs are a representation of the mystery or medicine doctrines, but with this Mr. Creed could not agree.* Creed read a paper entitled "Pictographs on Rocks at Fairy Lake," illustrated by the present series of copies of the drawings, before the Nova Scotia Historical Society at Halifax on 13th November, 1888. The paper was not published and unfortunately the manuscript is not filed among the society's papers, and may be now lost unless a copy is at the bureau of ethnology at Washington, but a rather extensive summary of it will be found in the *Morning Chronicle*, Halifax, of 14th November, 1888, where additional particulars may be had. Colonel Mallary gives an account of these petroglyphs on Fairy rocks on pages 37-42 of his "Picture-writing of the American Indians" published in the *10th Annual Report of the Bureau of Ethnology*, 1888-89, Washington, 1893; and his figures nos. 1, 2, 549, 550, 654 to 658, 717, 718, 739 to 741, 1254, 1255, and 1262 illustrate Nova Scotian examples.

We have added some further specimens illustrating the recent typical costume and workmanship of our Micmac Indians, as these are rapidly becoming things of the past. The articles secured include a Micmac chief's coat of typical shape, material and ornamentation, made of black broadcloth, decorated with 'pipings' of red broadcloth in the seams; bordered with red silk (partly in scalloped forms) on edges of front, lower margin of skirt, cuffs, shoulders ('wings'), and between shoulders; and bordered with blue silk on collar. It is further ornamented with beadwork, in typical Micmac designs, in white, ruby-coloured, blue, and yellow beads, on cuffs, shoulders ('wings'), and between shoulders, etc.; and with a few yellow tinsel disks among the beadwork between the shoulders. The coat is worn belted at the waist with a red girdle. Such coats are now only worn by the chief, captains, etc., of the tribe on ceremonial occasions, although in former years they were largely the ordinary dress of the Micmac men, being made by the squaws from materials purchased in the shops; but the form and style of ornamentation is very old. On the most formal

*A number of the latest and sharpest cut drawings superimposed on the older and less distinct ones, were evidently made by lumbermen and fishermen of comparatively recent date, who had been attracted by the older inscriptions. Mr. Creed gave attention almost entirely to the oldest and more nearly effaced markings which are the ones of importance.

occasions the chief still wears a feather head-dress, and also broad-cloth leggings ornamented with cloth tags up and down the outer seams. This is clearly a survival of the dress of pre-historic times, when leather leggings were worn, trimmed with scalp-locks or tags of leather on the outer seams. The coat just described was worn by John Noel, now chief of the Micmacs for Halifax, Lunenburg, Hants, King's, Colchester and Cumberland counties, when he was a captain (the next lower rank to that of chief) at the time when he with other chiefs was presented to the then Prince of Wales, the late King Edward VII., on the occasion of the latter's visit to Halifax in 1860. It was subsequently also worn by Noel after he was elected Chief and as late as 1910 when he formally attended the funeral of Bishop Cameron of Antigonish. It was obtained from chief Noel of Shubenacadie, who was born 3rd May, 1829. The museum has also obtained from Chief Noel's wife a typical Micmac woman's skirt of fine dark-blue broadcloth, 4 feet 2 inches in length and 3 feet in width, elaborately ornamented on 16 inches of lower part with crimson, pale geranium-pink, bottle-green, pale-blue, and light and dark buff-coloured silk ribbon of various widths arranged in horizontal bands, some of which are cut into pointed or saw-tooth forms and other varieties of pointed forms (in some cases possibly representing wigwams and spruce-trees), and further decorated with white beads and a few small tinsel disks. The skirt is made of the same width (3 feet) from top to bottom, without gores, etc., and the waist-line comes about 13 inches below the top edge. When worn, the top of the skirt went up under the arms and was held up by a tape or band passing over each shoulder, and then the waist was tied in. This elaborate skirt was made by a well-known Micmac woman, the late Mary Thomas, who died 25th March, about 1884, at the great age of 103 years, for her daughter Mary (born about 1822), then young, who married first Peter Saac, and is now the second wife of Chief John Noel beforementioned. Such skirts as this are now only occasionally worn on ceremonial occasions by the principal older women of the tribe, although in former years they were the ordinary everyday dress of the Micmac women. Ornamented broadcloth leggings were worn with the skirt, and a decorated jacket (*'mar-de-lit'*) of brightly coloured material, a specimen of which is in the museum, and bead-and silk-ornamented pointed cloth cap (one of which is in our collections) completed the costume. It is considered advisable to secure specimens of the typical costume of the tribe before this picturesque clothing has passed into oblivion, as it is now past doing.—In addition to the samples of Micmac work already in the museum we have obtained an oval box (9 inches by 6 inches) of birch-bark, ornamented with tribal designs in white, black, red, yellow, blue, orange, and green

porcupine quill-work, with borders of purple-dyed black-spruce roots and sweet-grass. It is an excellent example of Micmac Indian quill-work, and was made by Chief John Noel of Shubenacadie and ornamented by his wife Mary.—As a further memento of the native race, we have obtained full-length photographs of Chief Noel, in his ceremonial dress and red sash, with the silver medal presented to a former Chief by George III. and the gilt medallion presented by the Pope. Casts of the medal and photographs of the medallion are also in the museum, as well as the low moose-hide moccasins worn by the tribe, and specimens of their native gaming implements, crooked steel knives and basket-making tools, salmon, lobster, and eel-spears, bow and arrows, birch-bark moose-calls, etc.

History & art.—Colonel Dudley A. Mills, late R. E., Beaulieu, Hants, England, formerly on this station, has presented a rare plan of Chebucto [Halifax] harbour, engraved for the *Magazine of Magazines*; size of plate, 11.20 ins. x 5.95 ins.; scale, .75 in.=1 inch. It is undated, but is undoubtedly of the year 1750. It shows the mouth of the harbour, Cornwallis (now McNab's) island, the harbour of Chebucto, Halifax with the palisade lines and five small forts, George's island 'where the transports first landed', Warren's point where Dartmouth was afterwards situated, Sandwich river (now North West Arm,) and Bedford formerly called Torrington's bay, with Winter and Summer coves where Bedford is at present located.—Colonel Mills has also donated a very scarce tinted lithograph view of York redoubt, Halifax harbour, showing the old martello tower which formerly existed there, size of plate 11.40 ins. x 6.75 ins., drawn from nature and on stone, approximately about the year 1835, by R. Petley, lieutenant in the 50th regiment of foot, printed by C. Hullmandell, and published at London by J. Dickinson, New Bond street. The artist, Robert Petley, was in Halifax as a second and first lieutenant (with Lord Jocelyn) in the 1st battalion of the Rifle Brigade which was stationed here from Aug., 1832, till Aug., 1836. Petley was subsequently (from December 1836) in the 50th and (from 1838) in the 92nd regiment.—We have also obtained an engraving by Wells of the old commissioner's house in the naval yard, Halifax, from a drawing made about 1803, and published on 29 February 1804 by J. Gold, Shoe lane, London. The engraving which is rather rough stipple work, is on paper 9.65 ins. x 6.15 ins., and was taken out of some naval magazine. The large commissioner's house, long a prominent landmark in Halifax, the residence of notable naval men and the scene of many festivities, was built as a residence for the head official of the yard in 1785, during the

commissionership of Henry Duncan, (the warrant for its erection being dated, navy office, London, 8th March 1785, and received 13 July, *vide* the dockyard records). It was completely demolished in November 1909, after having been in existence for 124 years. A very fine mezzotint engraving of the house appeared in the *Naval Chronicle* (if the name is remembered correctly) of the early part of the nineteenth century, but unfortunately the publication is not at present at hand to give the exact date.—Another interesting accession is an engraved bust-portrait, with arms, in stipple work, of Marriott Arbuthnot, admiral of the blue squadron, engraved by H. R. Cook after the painting by Rising, and published 30 April 1810 by J. Gold, no. 103, Shoe lane, London. It is doubtless from the same naval magazine or chronicle in which the view of the commissioner's house appeared. Admiral Arbuthnot, who belonged to the family of Viscount Arbuthnot, was commissioner of the naval yard at Halifax from 1775 and for a time was lieutenant-governor of the province, and references to him very frequently occur in our local history of the period.

Examination of drill-cores.—As far as possible considering the heavy calls upon the curator's time, the cores received from the various drills operating in the province have been examined and checked with the drill-runners' logs, so as to lessen errors in determination and to produce harmony in the terms used in the various records.

Answers to enquiries.—A good deal of the curator's time is taken up in examining, determining, and giving an opinion on the value of samples of minerals forwarded by enquirers throughout the province, and in answering requests for information on a very large variety of subjects such as are directed to an institution of this kind. This creates a rather heavy correspondence and one which takes a considerable time to deal with.

Removal of museum to technical college.—After the science library had been removed to the technical college in May and June, as mentioned in the library report, and the books had been preliminarily arranged on the shelves, the work of removing the museum was taken up.

As the cases, tables, and other fittings and furniture in the old museum were nearly all obsolete, not uniform, and in very bad condition, most of them being probably forty or even perhaps seventy years old, besides not being at all sufficient in number for our

rapid growth, permission had been given in the latter part of 1909, to get certain new fittings. Sixteen single and nine double upright oak cases of size corresponding with the unit adopted in the museum, with simple adjustable shelving and sliding storage trays in cupboards below, had therefore been contracted for in the early part of March, and were delivered at the new museum rooms on 8-10 October. We will thus have only three standard cases in use, a single (wall) and double (centre floor) upright case, and a 5 ft. x 2½ ft. (unit) horizontal table-case. All these cases are interchangeable in the same space, two single uprights, back to back, making one double upright, and two double uprights occupying the exact space of one horizontal table-case (the unit). This will give a perfectly interchangeable and elastic character to the floor arrangement, which hitherto was utterly impossible with the various sizes and styles of cases in use.

The actual transfer of the collections to the new quarters was begun on 24 October, and such specimens as were taken up (chiefly the birds and fish) were cleaned and placed in order in the cases. The immediate need of finally arranging the entire science library, book by book, to put it in order for the convenient issue of books, the cataloguing of a large number of new books received from the technical college which were daily being called for, and the consideration of the matter of purchasing a number of much needed new table-cases and tables for the museum, etc., caused the the work of transferring the specimens to be suspended until these matters had been decided upon and completed. Authority to get new oak table-cases and tables, according to plans prepared in the museum, was given in November, and on 5 January 1911 contracts were signed for the construction of twenty-two table-cases (each 5 ft. x 2½ ft.) and eighteen tables, and they are expected to be delivered early in February. The old pine table-cases, of unit size, will be retained for the present. As soon as the new cases are received, the removal of the collections will be continued and carried to completion with only such necessary delays as will be caused by the arranging of the material as it comes in.

The old museum has been closed since 4 November and the curator's office moved to the technical college, as my constant attendance was required at the new science library, classes at the college having opened on 28 September, but we have been enabled, through the kindness of Mr. Hill, to have the old museum open nearly every afternoon since then, so as to inconvenience the public as little as possible.

Public records.—The curator, as deputy keeper of the records, has continued his superintendence of the public records of the province, and assisting searchers consulting them. A very large number of military records and plans handed over to the provincial records on the departure of the Imperial troops, need immediate binding to preserve them, particularly as some of the later ones are written with aniline ink which is rapidly fading where light strikes those volumes which have lost their covers. In November considerable time was given to re-arranging some hundreds of these volumes which had unfortunately been much mixed up in removal. The fire-proof vault for the public records in the basement of the technical college, is not yet dry enough for the reception of such valuable documents as state papers, nor is it considered advisable to place them there till all appearance of moisture has long disappeared. A room will be required in which to place the numerous chests of arranged but unbound documents and such others as cannot be accommodated in the vault, and there should also be a room provided in which searchers may work.

Donors—The following is a list of the donors to the museum for the year 1910, numbering 50:

Anderson (R. D.), Halifax.

Baillie (Alexander G.), Bliss (William), Halifax; Boston (George), Halifax; Bowman (Maynard), Halifax; Burchell (H. C.), managing director, Sydney Pressed Brick Co., Sydney; Burton (F. M.), Halifax.

Campbell (A. R.), Halifax; Crawford (Very Rev. Dean), Halifax.

Donkin (Hiram), deputy commissioner of mines, Halifax.

Fraser (Thomas M.), Halifax.

Gidney (A. M.), M. P. P., Sandy Cove, Digby county; Grayley (E. M.), Sable River West, Shelburne county; Griswold (Adam), Dartmouth.

Hall (George A.), Dartmouth; Hamilton (Dr. Charles A.), Mahone Bay; Harris (Mrs. Joseph S.), Dartmouth; Hayward (A. A.), Halifax; Henneberry (Thomas), Woodside, Dartmouth; Hill (T. Vardv), Halifax; Hirschfeld (George A.), Halifax.

Judge (William), Halifax.

Keddy (Charles), Lake Ramsay, Lunenburg county; Knight (J. A.), chief game commissioner, Halifax.

Leadley (Fred W.), Dartmouth; LeVatte (H. C. V.), Louisbourg.

McCallum (A. L.), Halifax; McDonald (G. A.), Wellington station, Halifax county; McGillivray (Angus), Halifax; McKay (H. R.), Annapolis Royal; McKenzie (Henry), Gerara's

Island, Spry harbour, Halifax county; Manley (Arthur), Woodside, Dartmouth; Maritime Oil & Gas Company, Lake Ainslie; Mills (Colonel Dudley A.), late R. E., "Clobb Farm," Beaulieu, Hants, England; Mines Department of N. S., Halifax; Mosher (W.), Dartmouth.

National Battlefields Commission, Quebec.

Paw (Henry N.), Halifax; Perrin (Joseph), McNab's Island, Halifax; Pickings (H. B.), Halifax; Piers (E. S. F.), Halifax; Prescott (James) and Sons, Enfield, Hants county; Provincial Secretary's office, Halifax; Purcell (Lancelot A.), Dartmouth.

Quan (Michael), Halifax.

Reid (Dr. Frank H.), Middleton.

Sydney Pressed Brick Co., Ltd., Sydney (per H. C. Burchell).

Tobin (Thomas S.), Halifax.

Wier (Hedley V), Halifax; Wright (Miss Henrietta), Lower Sackville, Halifax county.

SCIENCE LIBRARY.

Accessions.—The total number of books and pamphlets received by the Provincial Science Library from all sources during the calendar year 1910, was 3421. Of these, 1810 were received through the Nova Scotian institute of science, and 1,611 were accessions of the science library proper. Of the latter, 1,009 were non-society periodicals (mostly received through the mines department and the technical college); 390 were books received from the technical college; 155 were miscellaneous transfers from the mines department; 14 were transfers from the legislative library; 16 were new parts of the *International catalogue of scientific literature*; and 27 were donations (from the Halifax merchant tailors' and cutters' association, E. R. Faribault, and C. Ochiltree Macdonald). No direct purchases were made by the library, there being no funds available for the purpose. The total number of accessions received in 1909 was 2,204, an increase of 1,217 for 1910. The number of books and periodicals received from the technical college has had much to do with the increased accessions during the past year.

The following summary gives the number of accessions received during the past seven years. Figures are not available for previous years:

YEAR.	NUMBER OF BOOKS AND PAMPHLETS RECEIVED.		
	Science library proper.	N. S. institute of science.	Total.
1904	785	2330	3115
1905	679	1911	2590
1906	1079*	1756	2835
1907	729	1781	2510
1908	2064†	1697	3761
1909	450	1754	2204
1910	1611	1810	3421
Total, 7 years	7,397	13,039	20,436

*Includes 414 donations. †Includes 1,555 donations.

Among the new books transferred to the library in June from the technical college is a large series of excellent recently-published manuals, etc., on the following subjects: mathematics (arithmetic, mensuration, algebra, geometry, calculus), physics (mechanics, hydraulics, high-temperature measurements, electricity, magnetism, electrical testing), chemistry (pure and applied chemistry, analysis, pharmaceutical chemistry), crystallography, physical geography, lithology, economic geology, receipts and formulæ, engineering (mechanical engineering, shop practice, steam engineering, electrical engineering, internal combustion engines and motors, mill-wrighting, transmission of power, tunnelling, excavating, bridges, railway engineering and electric tramways), sanitary engineering (water-supply, sewerage works and sewage disposal, drainage, etc.), telephones, book-keeping, manufactures (metal-working, textile manufacture), building (materials and strength of materials, masonry and concrete work, carpentry, joinery and stairbuilding, plumbing and steam-fitting, heating and ventilation, painting, glazing and paper-hanging), drawing (architectural, mechanical and geometrical, perspective, and drawing instruments). The Halifax merchant tailors' and cutters' association has donated a series of modern works on garment cutting.

Number of volumes in the library.—The total number of books and pamphlets in the library on 31st December, 1910, was 42,409. Of these 10,012 belong to the science library proper, and 32,397 to the Nova Scotian institute of science. That is, about 24 per cent. are the property of the former, and about 76 per cent. belong to

the institute. The binding of parts of publications into volumes, would reduce the various counts.

Books borrowed.—During the year 626 books and pamphlets were borrowed, in addition to those consulted in the reading-room. This is the second largest number borrowed in one year, and doubtless more will be borrowed during the coming year, owing to the library's connection with the technical college and its better location. As in previous years, a number of books have been lent to persons residing in various parts of the province, to whom they were sent by post; but the heavy book-postage in force tends much to minimise the good that might be done in this way to make the resources of the library available to anyone throughout the province. The following is a summary of the number of books borrowed since the opening of the institution in 1901:

Year 1901.....	158	books borrowed.	
" 1902.....	163	"	"
" 1903.....	296	"	"
" 1904	519	"	"
" 1905.....	539	"	"
" 1906.....	661	"	"
" 1907.....	607	"	"
" 1908.....	381	"	"
" 1909.....	431	"	"
" 1910.....	626	"	"
Total, 10 years.....	4381	"	"

No books purchased or volumes bound.—We were again unable to independantly purchase books during the past year or to bind any volumes, there being no library grant for the purpose. The transfer, however, from the technical college to the library, of some 390 recently-published manuals, before referred to, has largely offset this, and has brought a number of our subjects pretty well up to date, although others still require the addition of new works, the rapid progress of science causing books to very soon become out of date. In no sort of library is the need of keeping up with the times more felt than in one devoted to pure and applied science and technical work.

Periodicals.—The following 31 non-society periodicals have been regularly received and filed:

TITLE.	PLACE OF PUBLICATION.	WHEN ISSUED.	SOURCE.
American Machinist.....	New York...	Weekly. ...	T. C.
American Tailor & Cutter	" ...	Monthly ...	P.
Canada.....	London.	Weekly. ...	M. D.
Canadian Engineer.....	Toronto.	" ...	T. C.
Canadian Machinery.....	"	Monthly ..	T. C.
Canadian Mining Journal.	"	Fortnightly	M. D. & T. C.
Canadian Patent Office			
Record.....	Ottawa.	Monthly ...	L. L. & I. S.
Chemical Engineer.....	Chicago.	" ...	T. C.
Economic Geology.....	Lancaster, Pa.	Semi-qrtly	T. C.
Educational Review.....	St. John.....	Monthly ...	P.
Electric Railway Journal.	New York....	Weekly. ...	T. C.
Electrical World.....	"	" ...	T. C.
Electrician	London.	" ...	T. C.
Engineering.....	"	" ...	T. C.
Engineering and Mining			
Journal	New York...	" ..	M. D. & T. C.
Engineering-Contracting..	Chicago	" ...	T. C.
Engineering News.....	New York....	" ...	T. C.
Engineering Record.....	"	" ...	T. C.
Gentleman's Tailor.....	London.	Monthly ...	P.
Industrial Advocate.....	Halifax.....	" ..	P.
Labour Gazette.....	Ottawa..	" ...	D. L. & M. D.
Ladies' Tailor.....	London.....	" ...	P.
Maritime Mining Record.	Stellarton....	Fortnightly	M. D.
Metallurgie	Halle-a-S. ..	"	T. C.
Mines and Minerals.....	Scranton	Monthly ..	T. C.
Mining & Scientific Press.	San Francisco	Weekly. ...	T. C.
Mining Journal.....	London.....	" ...	P.
Mining Magazine.....	"	Monthly ...	T. C.
Nature.....	"	Weekly. ...	E. C.
Power and the Engineer .	New York....	" ...	T. C.
Power House.....	Toronto.	Monthly ...	T. C.

[Source: D. L., Department of labour; E. O., Education office; I. S., Institute of science; L. L., Legislative library; M. D., Mines department (for science library); P., Publisher; T. C., Technical college.]

Removal of library to the technical college.—As mentioned in last year's report, instructions were received in October 1909 to prepare to move the science library to the new stack-room provided for it in the technical college, the old accomodation having become entirely incapable of holding any more additions. Plans were prepared for wooden book-shelving of the standard library dimensions, and in February a contract was made for the construction of 100 sections of 3 feet each, to be added to the 68 such sections already in use, which would give a total amount of shelving of 3,024 feet, as compared with 1,428 feet in use in the old library. The new shelving was erected 27-30 April.

On 9 May the work of removing the books was begun by commencing to tie them up in bundles, tagged and numbered in rotation. On 13 May the actual transfer of the bundles of books from the old library on Hollis street to the new stack-room in the college was begun, the books being lowered in boxes by means of tackle from the window. The taking down of the old shelving and its re-erection at the college was begun on the 16th and the same day we commenced placing the books on the shelves. On the 28th the tying up of the bundles of books was completed. Loads of books had been going up almost daily and on 17 June the last one was delivered and the transfer completed, the work of preparation and removal having occupied less than six weeks.

The placing of the books upon the shelves was subsequently completed, and then the bundles were checked over by number and untied, after which the entire library of nearly 40,000 items was carefully gone over and finally arranged book by book, which took till 10 November, this rearrangement having been interrupted by work connected with the mines building, the removal of the museum which began on 24 October, and other matters needing attention. Consideration had to be given to duly spacing the books on the shelves so as to allow for future expansion without disarrangement. Large signs were hung between the cases to assist in finding departments, and shelf-labels were attached. On 14 November an arrearage of work connected with the shelving of late accessions and the cataloguing of new publications was taken up, and was not completed till the end of the year, when current work was resumed.

The classes at the technical college opened on 28 September, and from that date the science library was daily opened for the use of the public in the afternoon, although books had been issued whenever possible in the interim, so that the public's use was little interrupted; and on 4 November, on moving my office to the college, the regular morning and afternoon hours of the library were resumed.

It is to be understood that the library in its new location continues to be primarily a free public library for the use of any person in the whole province, while it will be of special service to the college.

Capacity of the library.—It is not easy to form an estimate as to the future capacity of the new stack-room, as several uncertain factors enter into the subject. The institute of science's library when received in 1900 had occupied 720 ft. of shelving in Dalhousie college. The old library on Hollis street when evacuated in 1910 had 1428 ft. of shelving plus 84 ft. of books on floor for which there was no shelf room, making a total of 1512 ft. That is, 792 ft. of accessions (including institute exchanges, books from legislative library, purchases, etc.) were gained in ten years from 1900 to 1910. The new stack at the college has 3,024 ft. of shelving. Therefore, at the last ten years rate of increase, the present stack should accommodate accessions for about 20 years. The increased number of non-society periodicals now being received, and an increased number of general books that may also come in, would tend to cut down the capacity. If, however, we consider, as we should, the books received from the legislative library in 1900 as an extraordinary accession, to be discarded in considering normal yearly accessions, the future capacity of the library might be increased to say 26 years, which is, perhaps a safe estimate. If a second floor could then be inserted, the stack would have sufficient accommodation for very many years longer.

Cataloguing new books.—As the new books received from the technical college were being frequently called for, the cataloguing of these books on cards was taken up on 21 November and continued till the end of the year, when the work of writing cross-reference cards was begun and is now in hand. Some of the books have required as many as 22 cards to make all the entries considered advisable even in a single work. The accessioning of the society publications was continued throughout the year. The growth of the card-catalogue* has over-crowded the twelve-tray standard cabinet now in use, and an additional one will be

* The card catalogue now contains about 5,000 entries.

required. All the cards are hand-printed so as to make them as legible as possible ; and each card, besides author's name and title, gives number of pages in volume, states whether illustrated, size of book, and place of publication and date.

I have the honor to be, Sir,

Your most obedient servant,

HARRY PIERS,

Curator and Librarian.

TABLES

LIST OF LEASES OTHER THAN GOLD.

COAL.

No. of Lease.	Name of Owner.	County.	Name and Address of Agent of Company.
45/5, 46/28, 47/29, 50/40, 52/42, 60/54, 61/55, 62/56, 63/57, 65/59, 66/60, 67/61, 68/62, 69/63, 108, 110, 140, 162, 188, 207, 239, 240, 252, 253, 254, 255, 256, 263, 265, 266, 267, 268, 269, 270, 271, 280, 278, 279, 323, 373, 374, 375, 376, 377, 386, 387, 388, 389, 390, 391, 392, 409, 410, 426, 427, 428, 429, 430.....	Dominion Coal Co., Ltd.	Cape Breton.	M. J. Butler, C. M. G.....
1/2, 31, 32, 33, 27, 28.....			
9/22, 10/23, 11/28, 12/29, 13/30, 8/5, 195, 215, 216, 217, 218.....	Anglo Nfld. Dev. Co., Ltd. Styles Mining Co., Ltd. et al. Eastern Coal Co., Ltd.....	Victoria..... Cumberland . Cumberland .	B. F. Pearson, K. C. Hfx., N. S. R. C. Fuller, Amherst, N. S. W. S. Wilson, Maccan, N. S.
49/53, 42/52.....	Gen. Sir Alex. Mont. Moore.	Cape Breton.	.....

16/6, 17/7, 18/8, 19/44, 20/52, 21/55, 58, 59, 60, 62, 70, 71, 72, 73, 75, 76, 77, 80, 81, 82, 83, 84, 89, 94, 68, 66, 67, 69, 108, 110, 111, 112, 114, 115, 117, 121, 122, 123, 124, 125, 126, 128, 129, 135, 137, 138, 142, 143, 144, 145, 146, 147, 149, 150, 151, 152, 153, 154, 155, 169, 170, 171, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 196, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 232A, 233A, 234A, 235A, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279.	Cumberland Ry. & Coal Co. Cumberland..	J. R. Cowans, Springhill ...
211, 212, 213, 225A.....	Strathcona Coal Co., Ltd....	F.A. McCully, Moncton, N.B.
1/13, 6/4, 7/10, 19, 20, 26, 29, 30, 111, 112, 113, 150.....	Port Hood Coal Co., Ltd....	J. Law, Port Hood, N. S.....
24/47, 226A, 227A.....	Boston Coal Mining Co....	J. R. Needham, Boston, Mass.

LIST OF LEASES OTHER THAN GOLD.

COAL.—*Continued.*

No. OF LEASE.	NAME OF OWNER.	COUNTY.	NAME AND ADDRESS OF AGENT OF COMPANY.
3/11, 15, 18, 24, 25, 28, 40, 41, 60, 101, 104, 105, 130, 146, 147, 148, 149, 155, 156, 157, 158, 159, 160, 161, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 233, 234, 235, 240, 241, 242, 243, 11.....	Inverness Ry. & Coal Co.	Inverness ...	H.A. McLeod, Inverness, N.S.
58/67, 173, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 378, 379, 380			
26/16.....			
46, 58/6	Sir Robert L. Weatherbe.	Cape Breton..	.....
486, 487, 488, 489.....	Minudie Coal Co. Ltd. N. S. Steel & Coal Co., Ltd. Sydney Coal Co., Ltd.....	Cumberland . Pictou..... Cape Breton..	H. McCarthur Thomas Cantley, N. Glasgow A. G. Hamilton, N. Sydney.
112, 113, 114, 115, 118, 141, 177, 213, 244, 283, 472, 473, 474, 475, 476, 477, 478, 479, 480.....			
246			
8, 9, 106, 107, 114, 115, 116, 117, 118, 119, 120, 121.....	Cum'land Ry. & Coal Co.	Cape Breton..	J.R. Cowans, Springhill, N.S.
128, 219.....	A. G. Hamilton	Cape Breton..	.....
	Eastern Trust Co.....	Inverness.....	A. A. McKay, Halifax, N. S.
	Phoebe Brookeman et al....	Cape Breton..	E. W. Moseley, Sydney, N. S.

139, 492.....	Estate E. T. Moseley.....	Cape Breton..	E. W. Moseley, Sydney, N. S.
490, 491.....	Samuel C. Bennett.....	Cape Breton..	.....
481, 482.....	MacKay Mining Co., Ltd..	Cape Breton..	W. A. McKay, N. Sydney, N. S.
131, 135, 144, 171, 174, 182, 186, 187, 192, 200, 202, 205, 206, 209, 212, 215, 217, 225, 226, 229, 231, 233, 234, 243, 281, 295, 308, 309, 317, 318, 319, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 186, 187.....	C. B. Coal, Iron Ry. Co. Ltd.	Cape Breton..	McInnes, Mellish and Co., Halifax, N. S.
136, 138, 163, 184, 185, 199, 211, 236, 411.....	Atlantic Coal Co., Ltd.....	Cape Breton..	H. S. Ross, Sydney, N. S...
66, 96, 97, 98, 99, $\frac{3}{12}$, $\frac{6}{13}$, $\frac{4}{14}$	Interc'l Coal M'ng. Co., Ltd.	Pictou.....	James Floyd, Westville, N. S.
146, 193, 194, 216, 235, 312, 313, 314, 315, 381, 408.....	N. Atlantic Collieries Ltd..	Cape Breton..	T. G. McKenzie, Port Morien,
175.....	Joseph McDonald.....	Cape Breton..	.....
161, 195, 222, 237.....	T. Routledge, et al.....	Cape Breton..	W. Routledge, R. Mines, N. S.
117.....	Acadia Coal Co., Ltd.....	Pictou.....	C. J. Coll, Stellarton, N. S...
86.....	John Rutherford.....	Cumberland..	J. Rutherford, Halifax, N. S.
165, 167, 210, 118, 285.....	Isle Royale Coal Co., Ltd...	Cape Breton..	R. S. Cottrell, Sydney, N. S.
169, 170, 183, 224, 297.....	Dom. Coal Co., Ltd.....	Cape Breton..	M. J. Butler, C. M. G. Glace Bay.
94A.....	Great Northern Coal Co. Ltd.	Cumberland..	E. O. Seeley, Maccan.....
5, 36, 47, 48, 49, 50.....	N. Am. Coal & Dev. Co. Ltd.	Richmond....	G. E. Johnson, St. Peter's, N. S.
178.....	William Routledge, et al...	Cape Breton..	William Routledge, Reserve Mines, C. B.
179, 180, 190, 208, 223, 284.....	Frank Roberts et al.....	Cape Breton..	R. H. Williams, Halifax, N. S.

LIST OF LEASES OTHER THAN GOLD.

COAL.—Continued.

NO. OF LEASE.	NAME OF OWNER.	COUNTY.	NAME AND ADDRESS OF AGENT OR COMPANY.
104, 156, 157, 158, 159, 190, 161, 162, 163, 164, 165, 166, 167, 168, 176, 213A, 219, 220, 197, 198, 199, 200, 201.....	} Maritime Coal Railway & Power Co., Ltd.....	Cumberland..	David Mitchell, Maccan.....
32, 33, 34, 42.....		Inverness.....	.....
35, 38, 39, 43, 44, 67, 68, 70, 71, 72, 73, 74, 75, 77, 78, 79, 80, 81 63, 64, 65, 96, 97, 98.....	Thomas A. Wallace.....	Inverness.....	.....
201, 221.....	E. L. Thorne, Trustee.....	Inverness.....	.....
203.....	Estate of Cornelius Hickey.	Cape Breton.	.....
83, 84, 85.....	A. J. White.....	Cape Breton.	.....
214, 221.....	Estate A. McG. Barton.....	Pictou.....	William Roche, Halifax, N.S.
125A.....	Colonial Coal Co.....	Cape Breton.	R. S. Cotterell, Sydney.....
11, 31, 33, 37.....	George E. Francklyn.....	Cumberland.	.....
131.....	Richmond Coal Co., Ltd....	Richmond....	H. M. Pearl, Port Malcolm.
7, 8.....	T. S. Rogers, et al.....	Cumberland.	.....
248.....	Dominion Coal Co., Ltd....	Victoria.....	M. J. Butler, C. M. G. Glace Bay.
134.....	John McMillan, et al.....	Cape Breton.	.....
66, 108, 109, 154.....	Emp. Coal & Tram'y Co. Ltd.	Cumberland.	W. B. Chandler, Moncton, N.B.
69.....	J. C. Lithgow, et al.....	Inverness. ....	.....
	Hector McInnes, et al.....	Inverness. ....	.....

76	Silas Townsend Estate.....	Inverness.....	G. F. S. Townsend, Hfx, N.S.
82, 85, 88.....	J. W. Andrews	Inverness.....	.....
83, 84, 86, 87, 89, 90, 91, 62, 93, 94, 95.....	C. E. Sherman.....	Inverness.....	.....
110	Thomas Caldwell, et al.....	Inverness.....	T. Caldwell, Halifax, N. S.
34	William Ross, et al.....	Richmond.....	.....
35, 43	Dominion Coal Co.....	Richmond.....	M.J. Butler, C.M.G, G. Bay, N.S
290	Alexander McDonald.....	Cape Breton.....	.....
291	D. A. McCuish, et al.....	Cape Breton.....	.....
12	Estate T. K. Jenkins.....	Colchester.....	.....
14, 15	Colch. Coal & Ry. Co., Ltd.....	Colchester.....	E. A. Riley, Moncton, N. B.
293, 294, 321.....	M. A. McPherson, et al.....	Cape Breton.....	.....
128, 129	National Trust Co., Ltd.....	Inverness.....	McInnes, Mellish & Co., Halifax.
140, 141.....	Atlantic Grindstone Coal & Ry Co	Cumberland.....	James Baird, Lower Cove....
38, 39, 40, 41, 42.....	Hon. William Ross	Richmond.....	.....
142, 219.....	Thomas F. Tobin.....	Inverness.....	.....
172.....	Charles J. Stewart.....	Cumberland.....	.....
173.....	U. J. Weatherbe, et al.....	Cumberland.....	.....
143, 144, 151, 152, 153.....	Dominion Coal Co.....	Inverness.....	M.J. Butler, C.M.G, G. Bay, N.S

LIST OF LEASES OTHER THAN GOLD.

COAL.—Continued.

No. OF LEASE.	NAME OF OWNER.	COUNTY.	NAME AND ADDRESS OF AGENT OF COMPANY.
325, 326, 327, 328, 329, 330, 331, 332 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, $\frac{1}{27}$, $\frac{2}{27}$, $\frac{8}{27}$, $\frac{1}{13}$, $\frac{4}{13}$, $\frac{5}{28}$, $\frac{6}{28}$, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 221. 228A, 229A, 230A..... 231, 236, 237.....	Nova Scotia Steel & Coal Co., Ltd.....	Cape Breton.	Thomas J. Brown, Sydney Mines, N. S.
244..... 245, 246, 247..... 220, 221, 222, 223..... 64..... 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26.....	Bessie M. Hickman..... C. B. Coal & Iron Co..... Wm. McKenzie..... W. H. Johnston, et al..... W. P. Deppe..... John H. Emmett..... J. T. Burchell.....	Cumberland.. Inverness.... Inverness.... Inverness.... Inverness.... Richmond.... Victoria.....	Bessie M. Hickman, Amherst. D. L. McKay, South Lake Ainslie, C. B. McInnis & Mellish, Halifax. W. H. Johnstone, Halifax.. W. P. Deppe, Mabou, C. B.. J. H. Emmett, Halifax..... J. T. Burchell, Sydney.....

11, 12, 29, 30.....	Nova Scotia Steel and Coal Co., Ltd.....	Victoria.....	Thos. J. Brown, Sydney Mines, N. S.
45.....	A. J. Manley, Estate.....	Richmond.....	.....
10, 13.....	Maple Leaf Prospecting Co.	Colchester	W. H. Sylvester, New Glasgow N. S.
418, 419, 420, 421, 422, 423, 424, 425, 384, 413, 414, 415, 416, 417.....	J. Sydney Burchell.....	Cape Breton..	J. S. Burchell, Sydney, C. B.
100.....	Pictou Coal Mining Co.....	Pictou .....	.....
162.....	L. B. McMillan.....	Inverness.....	.....
461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471.....	J. H. Plummer.....	Cape Breton..	H. McInnes, K. C. Halifax..
204, 205, 206, 207, 208, 209, 210....	Jacob A. Johnson, et al.....	Cumberland..	.....
3.....	W. J. Murdoch, et al.....	Hants .....	.....
56	Canadian Consoli'ted Coal Co	Richmond ..	H. M. Pearl, Port Malcolm, N. S.
101	M. H. Richey.....	Pictou.....	.....
IRON			
47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 87, 93/44, 103.....	James H. Bartlett.....	Pictou.....	Ritchie & Robertson, Halifax
1, 2.....	Nova Scotia Steel and Coal Co., Ltd.	Inverness.....	Thomas Cantley, New Glasgow, N. S.
68, 70, 71, 83.....	Nova Scotia Steel and Coal Co. Ltd.....	Pictou.....	.....
191, 197.....	Estate John McVicar.....	Cape Breton..	A. G. McLean, Sydney, N. S.
232, 257.....	R. J. Brookman et al.....	Cape Breton..	E. W. Moseley, Sydney, N. S.
258, 259, 260, 316.....	M. A. McPherson, et al.....	Cape Breton..	.....
7	Lauchlin McDonald.....	Antigonish.....	.....

LIST OF LEASES OTHER THAN GOLD.

IRON, COPPER, LEAD, ETC.

No. OF LEASE	NAME OF OWNER.	COUNTY	NAME AND ADDRESS OF AGENT OF COMPANY
8, 9, 10, 11	Estate G. B. Cowlan, et al..	Antigonish ...	C. C. Whidden, Antigonish, N. S.
282, 324.....	Edgar W. Moseley.....	Cape Breton..	E. W. Moseley, Sydney, C. B.
14, 17, 18, 19, 20.....	Chas M. Wilkie.....	Antigonish....	.....
289.....	Isabella Watson, et al.....	Cape Breton ..	.....
292.....	Wiley Smith.....	Cape Breton ..	.....
16A.....	James Mahoney, et al.....	Antigonish....	J. W. Keith, Stellarton.
296.....	A. G. Hamilton, et al.....	Cape Breton..	.....
7.....	Nathaniel Curry, et al.....	Colchester....	N. Curry, Amherst, N. S.
66	J. R. G. Crispo.....	Richmond....	J.R.G. Crispo, Stittsville, Ont.
310, 311.....	C. B. Coal, Iron & Ry. Co. L'd	Cape Breton..	McInnes, Mellish & Co., Halifax, N. S.
320.....	Charles Archibald.....	Cape Breton..	Chas. Archibald, Halifax, N.S.
372	Alexander Matheson	Cape Breton..	.....
2	Amos Woodworth, et al.....	Hants .....	.....
412.....	Phoebe Brookman, et al.....	Cape Breton..	E. W. Moseley, Sydney, N.S.
	COPPER, LEAD, ETC.		
222A, 223A, 224, 225.....	William Roche	Inverness.....	Wm. Roche, Halifax.

226.....	J. H. Emmett.....	Inverness.....	J. H. Emmett, Halifax.....
227, 228.....	W. B. McDonald.....	Inverness.....	W. B. McDonald, Halifax.....
2, 3, (Lead).....	George E. Francklyn, et al.....	Colchester.....	Geo. E. Franklyn, Hfx., N.S.....
126 (Copper).....	Alexander Matheson.....	Cape Breton.....	.....
135A (Copper).....	Roderick McKenzie.....	Cape Breton.....	.....
142 (Copper).....	Henry LeCras.....	Cape Breton.....	.....
181 (Copper).....	J. E. Burchell, et al.....	Cape Breton.....	.....
228 (Copper).....	John A. McKenzie, et al.....	Cape Breton.....	J. A. McKenzie, Sydney, C.B.....
250, 70/95, 286, 287, 372/106 (Copper)	Boston Holding Co.....	Cape Breton.....	.....
5, 16, (Copper).....	Lake Copper Mining Co. Ltd.....	Antigonish.....	.....
88, (Copper).....	American-Canadian M'g Co.....	Pictou.....	.....
89, (Copper).....	Hiram W. Yuill.....	Pictou.....	.....
62, 102, 103, (Lead and Copper)...	Cheticamp Copper Co., Ltd.....	Inverness.....	J. W. Regan, Halifax, N. S.....
277 ('Talc).....	John O. Shares.....	Cape Breton.....	.....
9, 10 (Lead).....	H. C. Corson, et al.....	Victoria.....	H. C. Corson, Akron, Ohio.....
8, 11 (Copper).....	Estate T. K. Jenkins, et al.....	Colchester.....	Eastern Trust Co., Halifax, N. S.....
145 (Barytes).....	Brandram, Henderson Co. Ltd.....	Inverness.....	J. R. Henderson, Montreal P. Q.....
14, 15 (Lead).....	Henry C. Corson.....	Victoria.....	.....
407 (Copper).....	William F. Jennison.....	Cape Breton.....	.....
214 (Copper).....	Joseph H. Eaton.....	Cumberland.....	.....
4, 5 (Antimony).....	N. S. Mines Dev. Co., Ltd.....	Hants.....	A. Hobrecker, Halifax, N.S.....
4, 5.....	Chincook Mng. Co., Ltd.....	Halifax.....	T. W. Murphy, Halifax.....
6.....	John A. Reynolds, et al.....	Halifax.....	J. A. Reynolds, Moose River Logan & Ralston, Amherst.....
256.....	Colonial Copper Co.....	Cumberland.....	.....
6.....	H. A. Archibald.....	Guysboro.....	H. A. Archibald, Port Hastings

COAL.—GENERAL STATEMENT.

1910	Production	Sales	COLLIERY CONSUMPTION	
			Engines	Workmen
1st Quarter.....	1,186,724	871,545	108,857	12,448
2nd "	1,204,274	1,093,526	109,911	15,381
3rd "	1,458,142	1,303,776	113,098	24,906
4th "	1,628,006	1,628,049	110,897	20,221
	5,477,146	4,896,896	442,764	72,956

MINES REPORT

xiii

Production and Sales by Collieries, Nova Scotia, Year ended September 30th, 1910.

NAME OF COMPANY.	Output Tons.	Sales Tons.	Per Cent.	Colliery Consumption.	Per Cent.	Supplied Workmen.	Per Cent.	Total per cent of Output.	Reported Unsaleable.	Tons on Bank at close of Year	REMARKS
Dominion Coal Company, Ltd.	3244754	2018995	90.	220765	6.8	28210	8.7	97.7	.....	100450	Increase of 40358 tons on bank
Nova Scotia Steel & Coal Co.	836348	789572	94.4	32848	3.9	16663	1.9	100.	.....	28087	Decrease " 2135 "
Cumberland Railway & Coal Co.	53838	35542	66.	25253	31.8	1448	2.0	99.8	.....	15	" 1484 "
Acadia Coal Co.	355323	273230	77.	72698	20.5	8081	2.3	99.8	.....	8619	Increase " 1314 "
Maritime Coal, Railway & Power Co.	161843	144618	89.3	13894	8.6	2666	1.6	99.1	.....	635	" 635 "
Inverness Railway & Coal Co.	277257	256750	92.6	15576	5.7	4464	1.6	99.9	.....	3903	Decrease " 70 "
Intercolonial Coal Co.	274725	248425	90.4	31924	11.7	6927	2.5	100.	.....	28748	" 12550 "
Sydney Coal Co.	3986	3648	91.3	70	1.7	149	3.7	96.7	.....	25	Increase " 119 "
MacKay Mining Co.	17086	15425	90.3	1216	7.1	231	1.3	98.7	.....	214	" 214 "
North Atlantic Collieries Co.	89006	76250	85.7	9358	10.5	1511	1.7	97.9	600	2747	" 1287 "
Port Hood Richmond Coal Co.	86847	73881	85	10810	12.4	1488	1.7	99.1	.....	2010	" 668 "
Great Northern Coal Co.	882	350	39.7	300	34.	12	1.3	75.	.....	230	" 230 "
Minudie Coal Co.	54497	46017	84.4	2614	4.8	1228	2.3	91.5	4638	.....	" 4638 "
Atlantic Grindstone & Coal Co.	212	172	81.1	21	10.	29	13.7	100.	.....	.....	Decrease " 10 "
Eastern Coal Co.	6590	2438	37.	3908	59.3	244	3.7	100.	.....	.....	No coal on bank.
Colonial Mining Co.	13951	11583	83.	1509	10.8	146	1.4	95.2	.....	.....	Increase 713 tons on bank.
	5477146	489896	89.6	442764	8.1	72976	1.3	.....	.....	175076	

COAL.

Coal trade by Counties, Year ended September 30th, 1910.

	CAPE BRETON	PICTOU	CUMBERLAND	INVERNESS	TOTALS.
Nova Scotia, By Land.....	1,049,384	334,099	38,365	79,091	
Nova Scotia, By Sea	226,064	11,347	5,268	63,381	
Nova Scotia, Totals.....	1,275,448	345,446	43,633	142,472	1,806,999
New Brunswick Totals	255,574	74,559	156,692	43,789	530,614
Newfoundland	173,240	180	.....	3,566	176,986
Prince Edward Island	36,132	24,099	.....	19,261	79,492
Quebec.....	1,586,268	69,643	26,109	104,928	1,786,948
United States	282,736	.....	2,628	5,304	290,668
St. Pierre.....	7,504	.....	.....	.....	7,504
Bunker	198,571	7,728	74	11,312	217,685
	3,815,473	521,655	229,136	330,632	4,896,896

MINES REPORT

XX

Number and Classes of Workmen employed at each Mine in Nova Scotia, year ended September 30th, 1910

COMPANY	UNDERGROUND				SURFACE				CONSTRUCTION				TOTALS		HORSES		PIT DAYS
	Skilled Labor	Laborers	Boys	Days	Skilled Labor	Laborers	Boys	Days	Skilled Labor	Laborers	Boys	Days	Persons	Days	Above	Below	
Dominion Coal Co	2130	1290	290	1141375	461	355	50	235934	...	...	...	...	4576	1377309	80	475	283
N. S. Steel & Coal Co	1050	728	204	523322	135	195	29	105419	...	...	...	...	2341	628741	4	126	284
Cumberland Ry. & Coal Co.....	112	91	2	61144	54	104	1	48282	...	...	...	...	364	109426	44	11	225
Acadia Coal Co	275	281	92	201034	62	176	15	93884	...	...	...	...	901	294918	30	42	274
I tercolonial Coal Co	330	182	74	162599	68	104	22	57124	1	1	...	362	782	220085	12	33	286
Mar Coal Ry. & Pow. Co., Joggins.....	218	76	14	91637	19	50	11	23662	...	...	...	...	388	115299	4	12	297
“ “ Chignecto	71	40	10	29347	9	17	7	8901	...	...	...	...	154	38248	2	5	246
Inverness Coal Co	312	129	21	132092	39	55	12	30744	...	...	...	...	568	162536	7	22	287
Sydney Coal Co.....	8	4	2	1297	2	2	...	758	2	5	...	1234	23	3289	1	1	164
MacKay Mining Co.....	26	8	29	8070	4	7	...	2806	1	...	...	255	49	11131	2	3	225
North Atlantic Collieries.....	93	58	...	49629	12	50	10	19445	2	1	...	1031	255	70105	8	20	276
Port Hood Richmond Coal Co.....	92	86	...	47111	30	36	3	17639	...	2	...	304	256	65054	5	7	255
Great Northern Coal Co.	12	2	2	1152	10	...	2	864	9	...	...	630	37	2846	4	...	75
Minidie Coal Co.....	108	18	19	34025	14	17	3	9880	3	...	...	877	182	44782	3	1	232
Atlantic Grindstone & Coal Co ...	1	...	...	300	2	...	...	390	...	...	...	...	3	690	...	...	111
Eastern Coal Co.....	19	18	1	8334	12	18	3	5244	...	...	...	...	71	13578	...	...	218
Colonial Coal Co.....	26	7	...	6022	4	8	3	2723	3	...	...	807	51	9552	2	1	145
	4883	3018	767	2498490	937	1194	171	663699	21	10	...	5500	11001	3167689	298	700	

COAL.

NOVA SCOTIA EXPORTED TO THE UNITED STATES.

YEARS.	TONS.	DUTY.	YEARS.	TONS.	DUTY.
1850	118,173	24 ad.	1879	51,641	.75
1851	116,274	"	1880	123,423	"
1852	87,542	"	1881	113,728	"
1853	120,764	"	1882	99,302	"
1854	139,125	Free	1883	102,755	"
1855	103,222	"	1884	64,515	"
1856	126,152	"	1885	34,483	"
1857	123,335	"	1886	66,003	"
1858	186,743	"	1887	73,892	"
1859	122,720	"	1888	30,198	"
1860	149,289	"	1889	29,986	"
1861	204,457	"	1890	50,854	"
1862	192,612	"	1891	25,431	"
1863	282,775	"	1892	13,883	"
1864	347,594	"	1893	16,099	"
1865	465,194	"	*1894	79,837	.40
1866	404,252	"	†1895	73,097	"
1867	338,492	\$1.25	‡1896	174,919	"
1868	228,132	"	||1897	106,279	.67
1869	257,485	"	1898	98,027	"
1870	168,180	"	1899	153,188	"
1871	165,431	"	1900	624,273	"
1872	154,092	.75	1901	590,086	"
1873	254,760	"	1902	751,382	"
1874	138,336	"	1903	968,832	"
1875	89,746	"	1904	713,170	"
1876	71,634	"	1905	652,538	"
1877	118,216	"	1906	769,775	"
1878	88,495	"	1907	616,312	"
			1908	499,634	"
			1909	324,786½	"
			1910	290,668	"

NOTE.—The quantities given for the years 1853 to 1872 are on the authority of the Board of Trade, Philadelphia, and are probably underestimated.

*Nine months only.

†NOTE—After August 1st, 1894, duty on Round Coal, 40 cents, on Culm and Slack, 15 cents.

‡Fiscal year begins Oct. 1st, and ends Sept. 30th. (Chap. 4, Acts 1893).

||On July 24th, 1897, the duty was made 67 cents.

(NOVA SCOTIA COAL SALES 1785 TO 1909 INCLUSIVE)

Year.	Sales.	Total.	Year.	Sales.	Total.	
1785	1,668	14,349	1851	152,492	Forward 2,741,294	
1786	2,000		1852	178,076		
1787	10,681		1853	217,416		
1788			1854	234,812		
1789			1855	238,215		
1790			1856	253,492		
1791	2,670	51,048	1857	294,198	2,977,319	
1792	2,143		1858	226,725		
1793	1,940		1859	270,293		
1794	4,401		1860	322,593		
1795	5,329		1861	326,426		
1796	5,249		1862	395,637		
1797	6,049		1763	429,351		
1798	5,948		1864	576,935		
1799	8,947		1865	635,186		
1800	8,400		1866	558,523		
1801	5,755	70,452	1867	471,185	4,927,339	
1802	7,769		1868	453,624		
1803	6,601		1869	511,795		
1804	5,976		1870	568,277		
1805	10,130		1871	596,418		
1806	4,938		1872	785,914		
1807	5,119		1873	118,106		
1808	6,616		1874	749,127		
1809	8,919		1875	706,795		
1810	8,609		1876	634,200		
1811	8,516	91,527	1877	697,666	7,317,439	
1812	9,579		1878	693,511		
1813	9,744		1879	688,628		
1814	9,866		1880	954,659		
1815	9,336		1881	1,035,014		
1816	8,619		1882	1,250,176		
1817	6,284		1883	1,297,523		
1818	7,920		1884	1,261,650		
1819	8,692		1885	1,254,510		
1820	9,930		1886	1,373,666		
1821	11,308	140,820	1887	1,519,684	13,810,136	
1822	7,512		1888	1,576,692		
1823	27,000		1889	1,555,107		
1824			1890	1,786,111		
1825			1891	1,849,945		
1826	12,600		1892	1,752,934		
1827	12,149		*1893	1,485,914		
1828	20,967		†1894	2,019,742		
1829	21,935		1895	1,831,357		
1830	27,269		1896	2,047,133		
1831	37,170	839,954	1897	2,013,421	20,552,526	
1832	50,369		1898	2,135,397		
1833	64,743		1899	2,419,137		
1834	50,813		1900	2,997,546		
1835	56,434		1901	3,119,335		
1836	107,593		1902	3,895,626		
1837	118,942		1903	4,621,074		
1838	106,730		1904	4,544,609		
1839	145,962		1905	4,475,284		
1840	101,198		1906	5,194,590		
1841	148,298	1,533,798	1907	5,046,690	45,898,400	
1842	129,708		1908	5,485,583		
1843	105,161		1909	4,615,713		
1844	108,482		1910	4,896,896		
1845	150,674		Total....			
1846	146,506					
1847	201,600					
1848	187,643					
1849	174,592					
1850	180,684					

SUMMARY.

1785 to 1790.....	14,349	1841 to 1850.....	1,533,798
1791 to 1800.....	51,048	1851 to 1860.....	2,399,319
1801 to 1810.....	70,452	1861 to 1870.....	4,977,339
1811 to 1820.....	91,527	1871 to 1880.....	7,317,439
1821 to 1830.....	140,820	1881 to 1890.....	13,910,136
1831 to 1840.....	839,954	1891 to 1900.....	20,552,526
		1901 to 1910.....	45,898,400

(*Nine months only. †Fiscal year begins Oct. 1st and ends Sept. 30th. (Chap. 4, Acts, 1893.)

MINES REPORT

GOLD—GENERAL ANNUAL STATEMENT.

YEAR.	Material Crushed.	TOTAL GOLD EXTRACTED.		
		Oz	Dwt.	Gr.
1862	6473	7275	0	0
1863	17002	14001	14	17
1864	21434	20032	18	13
1865	24423	25454	4	8
1866	32162	25204	13	2
1867	31386	27314	11	11
1868	32262	20541	6	10
1869	35147	17868	0	19
1870	30829	19866	5	5
1871	30791	19227	7	4
1872	17093	13094	17	6
1873	17708	11852	7	19
1874	13844	9140	13	9
1875	14810	11208	14	19
1876	15490	12038	13	18
1877	17369	16882	6	1
1878	17990	12577	1	22
1879	15936	13801	8	10
1880	14037	13234	0	4
1881	15556	10756	13	2
1882	12081	14107	3	20
1883	25954	15446	9	23
1884	25147	16059	18	17
1885	28890	22202	12	20
1886	29010	23362	5	13
1887	22280	21211	17	18
1888	36178	22407	3	10
1889	39160	26155	6	13
1890	42749	24358	9	9
1891	35212	23391	0	0
1892	33633	21080	3	18
*1893	28040	14030	5	7
1894	39333	14980	7	13
1895	58082	22112	17	21
1896	65873	25596	14	6
1897	76559	26579	19	21
1898	86331	31104	17	0
1899	104 22	27772	2	3
1900	65744	30399	14	14
1901	87992	30537	4	0
1902	192076	28279	5	13
1903	92645	25198	4	18
1904	62616	14279	18	14
1905	71725	15549	14	6
1906	64495	13048	0	12
1907	64657	13687	6	20
1908	59664	11811	15	0
1909	59058	12597	12	13
1910	49355	10325	19	1
(Not included in above table.)		2080403	919046	19 14
Gold extracted or contained in Stib- nite ore shipped from West Gore, as by returns contained elsewhere in this report.	1905 527	1232	16	23
	1906 783	1031	13	11
	1907 1403	1319	18	12
	1908 133	179	5	0
	1910 203	350	4	15
(Concentrates		2083452	923160	18 3
*Nine months only.				

PRODUCTION OF GOLD FROM 1862 TO 1910.

DISTRICT.	Tons Crushed	TOTAL YIELD OF GOLD.				AVERAGE YIELD OF GOLD THE TON.				Value at \$19 an Oz				
		Oz.		Dwt.		Grs.		Oz.			Dwt.		Grs.	
*Caribon and Moose River	216242	57785	12	22	5	8	\$1097925							
Montague	29482	42149	1	6	8	14	800852							
Oldham	58026	66936	18	21	3	2	1271802							
Renfrew	54918	45798	17	19	16	16	870179							
Sherbrooke	300213	153086	12	4	10	5	2908646							
Stornont	515241	117128	12	18	4	13	2233444							
Tangier	55060	25322	13	19	9	5	481131							
†Uniacke	63331	43982	17	17	13	21	835675							
Waverley	155520	69980	10	16	9	0	1329630							
‡Brookfield	93527	58709	2	2	8	7	735473							
‡Salmon River	118819	41852	5	20	7	1	795193							
‡Whiteburn	6907	980	0	2	8	9	186900							
§Lake Catcha	27202	26986	5	23	19	20	512740							
¶Rawdon	12189	9606	5	10	15	18	182519							
Wine Harbour	77396	34992	15	11	9	1	664863							
**Fifteen Mile Stream	36636	17207	13	5	9	9	326945							
Molega Barrrens	22693	20235	17	18	17	20	34482							
Other Districts	142476	74610	7	7	10	11	1417597							
Not included in above table; Gold extracted from or contained in Stibnite Ore shipped from West Gore. (Concentrates).	1985878 527 783 1403 133 203	896172 1232 1031 1319 179 350	11 16 13 18 5 4	0 23 11 12 0 15	8 6 6 18 6 14	20 19 8 19 23 12	1702759 23424 19092 25078 346 654							
Total	1988927	900286	9	13	.....	.....	17105413							

*From 1869. †From 1866. ‡From 1883. §From 1887. ¶From 1882. **From 1887. ***From 1883.

MINES REPORT

GENERAL GOLD STATEMENT—Year ended September 30th, 1910.

DISTRICT.	Tons Crushed.	TOTAL YIELD OF GOLD.			AVERAGE YIELD OF GOLD PER TON.		
		Oz.	Dwt.	Gr.	Oz.	Dwt.	Gr.
Stornont.....	36978	4075	12	1	.....	2	5
Wagamatkook...	336	38	5	0	.....	2	7
Uniacke.....	62	36	16	0	.....	11	21
Gold River.....	250	227	18	19	.....	18	6
Caribou.....	409	270	10	0	.....	13	5
Caribou (Moose River).....	2291	235	14	0	.....	2	1
Tangier.....	3115	875	2	0	.....	5	15
Oldham.....	1616	2936	6	0	1	16	8
Brookfield.....	90	23	2	12	.....	5	3
Fifteen Mile Stream.....	180	148	18	0	.....	16	13
Fifteen Mile Brook.....	530	92	3	0	.....	3	11
Kemptville..	52	52	6	0	1	0	3
Killag.....	74	59	13	0	.....	16	3
Malaga Barrens.....	776	326	12	6	.....	8	10
Montague.....	304	161	6	1	.....	10	15
Renfrew.....	1834	624	10	0	.....	6	19
Salmon River.....	236	55	15	0	.....	4	17
Sherbrooke.....	221	84	11	0	.....	7	16
McKay Settlement.....	1	.....	8	10	.....	8	10
	49355	10325	9	1	.....	4	4
	203	350	4	15	1	14	12
	49558	10675	13	16	.....	4	7
WEST GORE.							
Gold contained in Concentrates.....							
Total.....							

MONTHLY STATEMENT FOR EACH GOLD DISTRICT.

MONTH.	STORMONT.				*WAGAMATKOOK.					
	No. of Mines.	Tons Crushed	YIELD OF GOLD.			No. of Mines.	Tons Crushed	YIELD OF GOLD.		
			Oz.	Dwt.	Gr.			Oz.	Dwt.	Gr.
1909										
October.....	I	3372	471	.....	.....	I	143	38	5	.....
November.....	I	3497	457	.....	.....	I	92	No	Clean up	.....
December....	I	3648	488	.....	.....	.....	.....	No	Crushing done	.....
1910										
January.....	I	3399	349	.....	.....	.....	.....	No	Crushing done	.....
February.....	I	3310	294	.....	.....	I	101	No	Clean up	.....
March.....	I	3676	321	.....	.....	.....	.....	No	Crushing	.....
April.....	I	3458	442	.....	.....	.....	.....	"	.....	.....
May.....	I	3310	301	.....	.....	.....	.....	"	.....	.....
June.....	I	3722	343	16	.....	.....	.....	"	.....	.....
July.....	I	2748	244	14	I	.....	.....	"	.....	.....
August.....	I	2800	351	11	.....	.....	.....	"	.....	.....
September ..	I	38	12	11	.....	.....	.....	"	.....	.....
Total.....	.....	36978	4075	12	I	.....	336	38	5	.....

*Returns from this District also show a production of 9 oz. 4 dwt. 0 grs. Silver.

MONTHLY STATEMENT FOR EACH GOLD DISTRICT.

MONTH.	UNIACKE.				GOLD RIVER.			
	No of Mines.	Tons Crushed.	YIELD OF GOLD.		No of Mines.	Tons Crushed.	YIELD OF GOLD	
			Oz.	Dwt. Grs.			Oz.	Dwt. Grs.
1909								
October	NoCrushing		done	.....	I	49	42	5 23
November	I	24	14	8	I	22	40	5 13
December	NoCrushing		done	.....	I	40	31	18 4
1910								
January .....	"	"	"	.....	I	45	25	I 5
February .....	"	"	"	.....	I	35	22	19 19
March .....	"	"	"	.....	I	30	23	16 9
April .....	"	"	"	.....	I	11	27	7 5
May .....	"	"	"	.....	.....	NoCrushing	done	.....
June	3	38	22	8 .....	.....	"	"	.....
July	NoCrushing		done	.....	.....	"	"	.....
August .....	"	"	"	.....	.....	"	"	.....
September .....	"	"	"	.....	2	18	14	4 13
Total .....	.....	62	36	16 .....	.....	250	227	18 19

MONTHLY STATEMENT FOR EACH GOLD DISTRICT.—(Continued).

MONTH	CARIBOU				CARIBOU (MOOSE RIVER)			
	No. of Mine	Tons Crushed	YIELD OF GOLD.		No. of Mine	Tons Crushed	YIELD OF GOLD.	
			Oz.	Dwt. Grs.			Oz.	Dwt. Grs.
1909								
October.....	No	Crushing	.....	.....	1	250	16	.....
November.....	No	Clean up	.....	.....	1	215	5	.....
December.....	1	88	122	2 0	3	548	53 3	.....
1910								
January.....	1	37	32	.....	2	408	13 14	.....
February.....	1	58	16	17	5	60	22 15	.....
March.....	1	39	8	.....	.....	No	Crushing	.....
April.....	1	38	40	13	3	188	25 18	.....
May.....	1	41	19	15	1	7	5 18	.....
June.....	No	Clean up.....	.....	.....	1	365	8 17	.....
July.....	1	61	17	14	4	127	11 16	.....
August.....	No	Milling.....	.....	.....	5	58	31 3	.....
September.....	1	47	13	09	5	65	41 10	.....
Total.....		409	270	10	.....	2291	235 14	.....

MONTHLY STATEMENT FOR EACH GOLD DISTRICT.

MONTH.	TANGIER.				OLDHAM.				
	No. of Mines.	Tons Crushed.	YIELD OF GOLD.			Tons rushed	YIELD OF GOLD.		
			Oz.	Dwt.	Grs.		Oz.	Dwt.	Grs.
1909									
October	NoCrushing		.....	.....	.....	95	244	7	.....
November	1	400	171	.....	.....	75	71	.....	.....
December	1	500	98	.....	.....	156	344	6	.....
1910									
January	1	450	112	.....	.....	210	311	19	.....
February	1	400	96	.....	.....	160	287	11	.....
March	1	190	45	15	.....	136	363	5	.....
April	1	200	42	.....	.....	163	302	2	.....
May	1	150	52	10	.....	187	301	18	.....
June	1	25	8	17	.....	159	279	9	.....
July	1	350	120	.....	.....	88	198	15	.....
August.....	1	250	81	.....	.....	130	142	7	.....
September	1	200	48	.....	.....	57	89	7	.....
Total.....	.....	3115	875	2	.....	1616	2936	6	.....

MONTHLY STATEMENT FOR EACH GOLD DISTRICT.—(Continued.)

MONTH.	OTHER DISTRICTS.				THE FIGURES UNDER THE HEADING OF "OTHER DISTRICTS" ARE MADE UP AS FOLLOWS:			
	No. of Mines.	Tons Crushed	YIELD OF GOLD			DISTRICT.	No. of Mines.	Tons Crushed
			Oz.	Dwt.	Grs.			
1909								
October.....	4	312	73	2	10	*Brookfield.....	1	90
November.....	5	668	174	6	11	Fifteen Mile Stream	1	180
December.....	1	40	2	10	0	Fifteen Mile Brook	1	530
1910						Kemptville.....	1	52
January.....	1	50	12	2	10	Killag.....	1	74
February.....	2	283	143	16	0	Malaga Barrens...	1	776
March.....	2	357	238	5	0	Montague.....	2	304
April.....	3	529	133	8	19	Renfrew.....	1	1834
May.....	5	485	135	10	17	Salmon River....	1	236
June.....	5	314	143	9	10	Sherbrooke.....	1	221
July.....	4	391	168	16	0	McKay Settlement	1	1
August.....	5	332	180	14	0			
September.....	5	537	223	4	0	Total.....	.....	4298
Total.....	.....	4298	1629	5	5			5

*Returns from this district also show a production of 5 oz. 2 dwt. 14 gr. silver.

INTERCOLONIAL RAILWAY.

Statement of coal shipped from Nova Scotian mines during the year ended 30th September, 1910.

To	Tons	To	Tons
Halifax.....	61,148	<i>Brought Forward</i>	
Fairview.....	652		
Dartmouth.....	10,781	Brown's Point.....	14
Richmond.....	10,199	Merigomish.....	190
Waverley.....	104	West Merigomish..	150
Rockingham.....	767	Avondale.....	92
Bedford.....	427	Antigonish.....	4,164
Lake View.....	13	Heatherton.....	40
Windsor Jct.,.....	26,876	Bayfield.....	23
Rocky Lake.....	48	Afton.....	07
Enfield.....	1,572	Tracadie.....	34
Elmsdale.....	136	Mulgrave.....	16,497
Maicolm's.....	20	Point Tupper.....	196
Milford.....	21	Beaver Cove.....	11
Shubenacadie.....	178	West Bay Road....	19
Dewis.....	72	Cleveland.....	25
Stewiacke.....	221	River Denys.....	69
Graham's.....	46	Cummings.....	16
Brookfield.....	26	Ottawa Brook.....	07
Lantz.....	109	Orangedale.....	53
Truro.....	77,353	Young's.....	18
West River..	59	Iona.....	777
Hopewell.....	472	George's River....	35
Miners.....	76	McKinnon's Harbor	23
Ferrona Jct.....	1,217	Christmas Island...	63
Eureka.....	369	Grand Narrows....	586
Stellarton.....	47,387	Barrachois.....	36
Riverton.....	44	Boisdale.....	57
Westville.....	181	Shenacadie.....	30
Alma.....	26	Big Beach.....	34
New Glasgow.....	19,281	Porter's.....	16
Sylvester's.....	216	Leitches' Creek....	136
Trenton.....	60,940	Sydney Mines.....	108
Lock Broom.....	27	Scotch Lake.....	460
Pictou Landing....	31,648	Ball's Siding.....	19
<i>Carried forward</i>		<i>Carried Forward</i>	

INTERCOLONIAL RAILWAY—(Continued).

To	Tons	To	Tons
Sydney River.....	22	<i>Brought forward</i>	
Sydney	23,090	Sackville.....	9,259
Bible Hill.....	87	Penitentiary	767
Belmont.....	46	Dorchester.....	1,852
Londonderry	5,147	Crowsen's	07
Folleigh.....	74	College Bridge.....	772
Westchester	20	Upper Dorchester ...	15
Greenville.....	22	Memramcook	23
Thompson.....	35	Calhoun's	16
Oxford Junction.....	3,589	Shediac	998
Oxford.....	2,493	Scoudouc	22
Conn's Mills.....	56	Point duChene.....	275
Pugwash Junction..	21	Humphrey's	146
Pugwash.....	1,216	Donald's.....	761
Wallace Bridge....	26	Moncton	134,801
Wallace.....	326	Salisbury	3,013
Malagash	87	Petitcodiac	594
McCallum's.....	07	Penobsquis.....	18
Tatamagouche.....	491	Sussex.....	2,294
Urquhart	14	Norton	1,004
Denmark	144	Bloomfield	18
Wilson	27	Hampton.....	436
River John.....	668	Nauwigewauk	21
Fitzpatrick	13	Rothsay.....	44
Meadowville.	60	St. John	34,920
Scotsburn	134	Corbett's	6,563
Lyon's Brook.....	577	Canaan	68
Pictou	21,019	Harcourt.....	54
Haliburton's.....	33	Kent Junction.....	598
River Philip.....	07	Chatham.....	7,048
Salt Springs.....	27	Loggieville.....	494
Spring Hill.....	19,937	Blackville	22
Athol.....	07	Boiestown.....	955
Gypsum Siding.....	857	McGivney's.....	14,385
Nappan.....	68	Cross Creek.....	18
Amherst	55,978	Marysville.....	760
Aulac	99		
<i>Carried forward</i>		<i>Carried forward</i>	

INTERCOLONIAL RAILWAY—(*Continued*).

To	Tons	To	Tons
Gibson	53	<i>Brought forward</i>	
Fredericton	4,210	River duLoup	13,427
Millerton	8,262	St. Paschal	36
Indiantown	16	River Ouelle Wharf	450
Newcastle	7,846	St. Jean Port Joli	221
Red Pine	22	Montmagny	29
Gloucester Jct	1,619	Carrier	2,073
Bathurst	733	Chaudiere Junction	35
Nepisquit Junction	841	St. Romauld	121
Prescott's	40	Levis	633
Dalhousie Jct	41	Villeroy	214
Dalhousie	210	Nicolet	153
Campbellton	36,849	Montreal	7,804
Matapedia	5,609	Jacques Cartier Jct.	19,496
Sayabec	412	Q. C. R. via Carrier	2,287
St. Moise	34	C. P. R. via St John	188
St. Flavie	35,501	G. T. R. via	
Rimouski	483	Chaudiere Jct	224
Rimouski Wharf	558		
<i>Carried forward</i>		Total	887,012

INTERCOLONIAL RAILWAY.—(*Continued*).

SUMMARY.

FROM.	TONS.
Maccan.....	198,648
Stellarton.....	391,521
Westville.....	29,960
New Glasgow.....	83,612
Point Tupper.....	104,754
North Sydney.....	50,493
Sydney.....	9,297
Springhill Junction	18,727
Total.....	887,012

